



OCTOBER 1956

COMMERCIAL REFRIGERATION & AIR CONDITIONING

What every
Air Conditioning Contractor
should know about...

High Velocity Systems

page 71

ALSO IN THIS ISSUE:

Freezing 20 Tons of Turkeys Per Day / 40

Super Cooling for a Super Market / 42

Want the "Sharpest Pencil" in Town? / 80

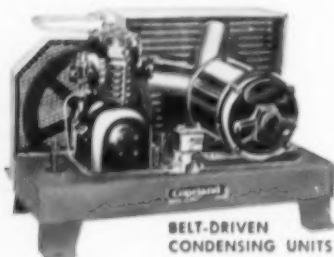
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MERCHANDISING, ENGINEERING, INSTALLATION, MAINTENANCE OF
AIR CONDITIONING AND COMMERCIAL REFRIGERATION EQUIPMENT

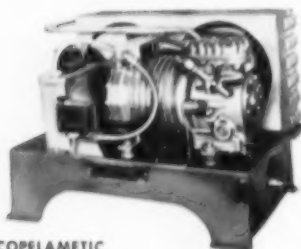


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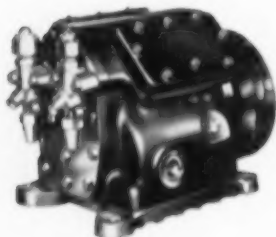


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Superior—engineered for every refrigeration need.



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**AUTOMOTIVE AND
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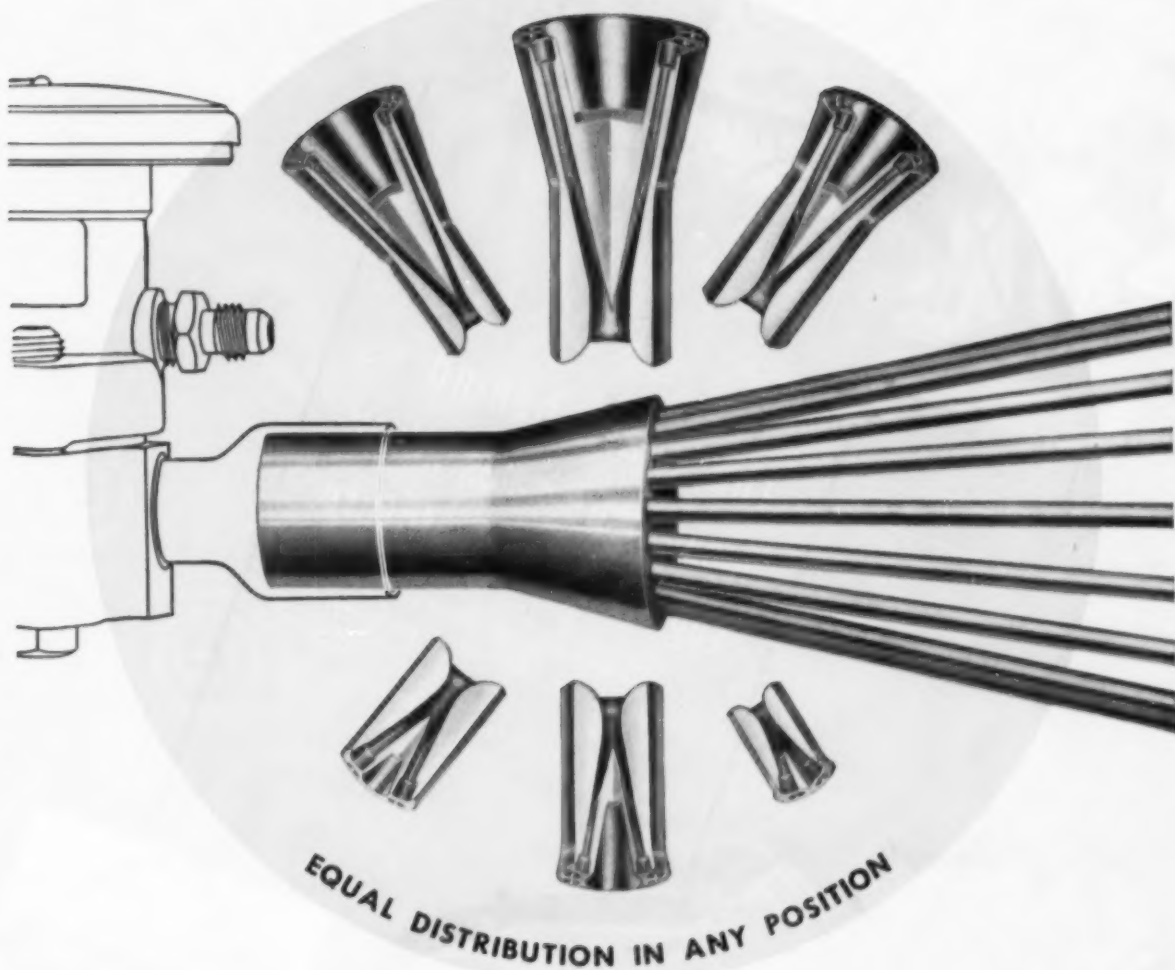
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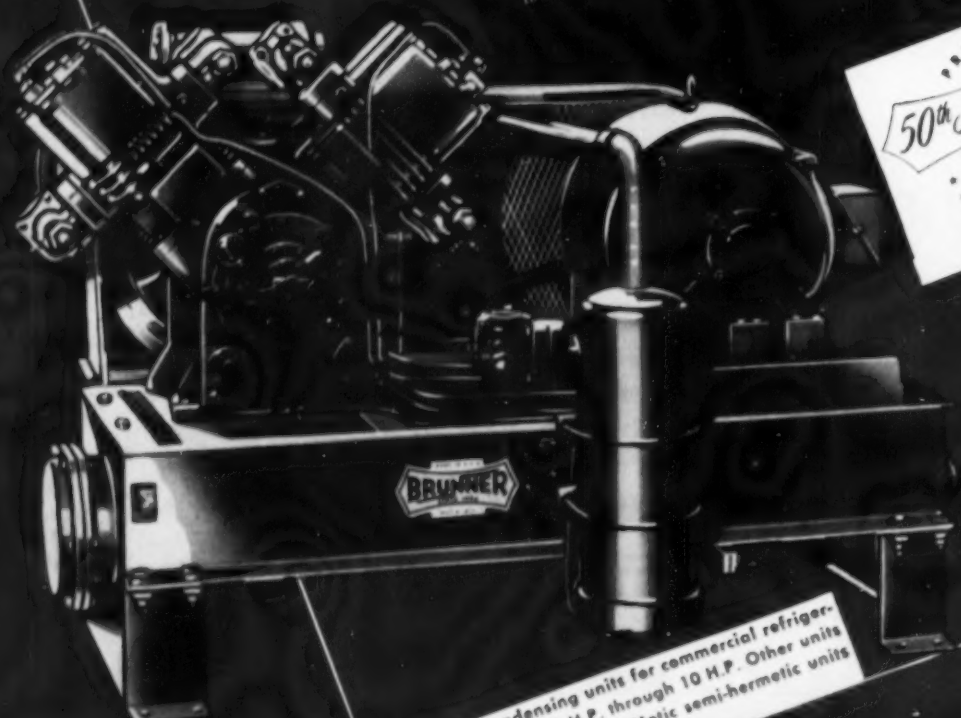
The bicycle built for two,
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larity rating in 1906 —
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TODAY GO BRUNNER

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Open-type condensing units for commercial refrigeration range from 1/4 H.P. through 10 H.P. Other units through 100 H.P. Brunner-Metic semi-hermetic units from 1/4 H.P. through 3 H.P.

COMMERCIAL REFRIGERATION & AIR CONDITIONING

OCTOBER 1956 • VOLUME 13 • No. 10

FEATURE ARTICLES

- 38 LICKING TWO PROBLEMS** . . . with one well-planned installation is nothing new to this Omaha refrigeration contractor who once again proves that pre-planning pays off.
- 40 FREEZING 20 TONS OF TURKEYS PER DAY** . . . in a relatively small room is made possible by use of a circulating liquid ammonia system plus clever "channeling" of the sub-zero air.
- 41 TEST TOWER FOR COOLING TOWERS** . . . This completely instrumented proving ground makes available more accurate data on tower capacity and performance.
- 42 SUPER COOLING FOR A SUPER MARKET** . . . 4700 square feet of refrigerated storage area plus 552 lineal feet of refrigerated display are key features of this huge Indiana food store.
- 44 PRECOOLING PROVIDES PEAK EFFICIENCY** . . . for the ammonia system that supplies hold-over cooling for this fleet of dairy trucks.
- 45 COOL POOL FOR TROUT FISHING** . . . is made possible at a New Jersey amusement park by a mechanical refrigeration system that holds 30,000 gallons of water down to 54 F.

Air Conditioning Section

- 71 HIGH VELOCITY SYSTEMS** . . . An authoritative discussion of what advantages and opportunities they offer to the air conditioning contractor, and what every contractor should know about them.
- 76 65 TONS OF INTEGRATED AIR CONDITIONING** . . . That's the net result of this piecemeal installation in a small town printing plant that took 6 years and 15 pieces of equipment to complete.
- 78 "COOLING ONLY" WASN'T ENOUGH** . . . for this Ohio hospital, so what started out as a straight cooling job ended up as a year-round installation.
- 79 "AIR CONDITIONING IS INDISPENSABLE"** . . . that's the considered judgment of the director of the extensive research laboratory maintained by U. S. Envelope Co.
- 80 WANT TO HAVE THE "SHARPEST PENCIL" IN TOWN?** . . . These proven methods of providing more tons per dollar and more conditioned space per ton can help you quote the lowest possible cost on every air conditioning job.
- 84 A 4-PACKAGE CENTRAL SYSTEM** . . . proved the best answer to the peculiar problems of this wholesale furniture firm. Here's the "how" and "why" of this unusual system.

DEPARTMENTS

About People	20	Useful Literature	52, 88
Letters	34	New Products	54, 90
BTU's	37	Applications Manual	106
Commercial Sales News	46	Here's How	111
Contractors	50	Opportunities	117
Index to Advertisers		118	

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Accepted as Controlled Circulation Publication at St. Joseph, Michigan. Please return 3579 forms to 900 Canton Bldg., 812 Huron Road, Cleveland 15, Ohio.

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INDUSTRIAL PUBLISHING GROUP
(A Division of Telenews Productions, Inc.)
800 Caxton Bldg., 812 Huron Road
Cleveland 15, Ohio

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Subscription rates: United States and possessions—\$5.00 per year, \$8.00 for 2 years; Canada—\$6.00 per year; Foreign—\$7.00 per year, except the United Kingdom. United Kingdom subscriptions £ 2.5 per year, payable in Sterling to our London Office. Single copy price, 50 cents. All subscriptions subject to individual acceptance by the publisher.

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OCTOBER, 1956 • COMMERCIAL REFRIGERATION

...on Pennsalt's new refrigerants

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THE KEY TO MODERN LIVING

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*ISOTRON IS A TRADEMARK OF THE PENNSYLVANIA SALT MFG. COMPANY



If your prospect
seems cold



suggest
time payments



to close the
sale



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Be sure your job can stand up in service. ANACONDA Refrigeration Tube is 99.9% pure copper, phosphorus deoxidized—clean and dry—made to meet ASTM Specification B280-55T.

Be sure you can make a fast, easy installation. ANACONDA Refrigeration Tube is consistently uniform in gage, size, and temper. ANACONDA Fittings, Vibration Eliminators, and Tube are built to match.

Be sure you get all these extra values — to protect your reputation and your profits, ask for Anaconda refrigeration products by name.

See your Anaconda Distributor for prompt, convenient, and reliable service on all of your requirements—tube, pipe, fittings, and Vibration Eliminators. The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

ANACONDA®
REFRIGERATION PRODUCTS

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& AIR CONDITIONING • OCTOBER, 1956

LINE UP with SPORLAN

for

Right-Down-the-Line
PEAK PERFORMANCE
on All Air Conditioning
Installations



No matter how large or small the system, there's a perfect Sporlan hook-up available from Catch-All to Distributor

Everyone knows about Sporlan Catch-Alls, the perfect Filter-Driers. They assure you filtering instead of straining. Dirt-free, sludge-free systems are the result. Harmful corrosive acids are adsorbed and retained. In addition, they dry down to an end point so low that any remaining moisture is absolutely harmless.

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Sporlan Thermostatic Expansion Valves with the exclusive Flow-Master element, are your guarantee against hunting. Alternately starved and flooded evaporators will never plague you again with these Peak Performers!

Uniform distribution to all circuits are yours with Sporlan Peak Performance Distributors. Their perfectly designed conical button and interchangeable nozzles give them greater flexibility and a much larger range of application.

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for Right-Down-The-Line Peak Performance
on all air conditioning systems... Line up
with Sporlan and get Peak Performance
on every installation.



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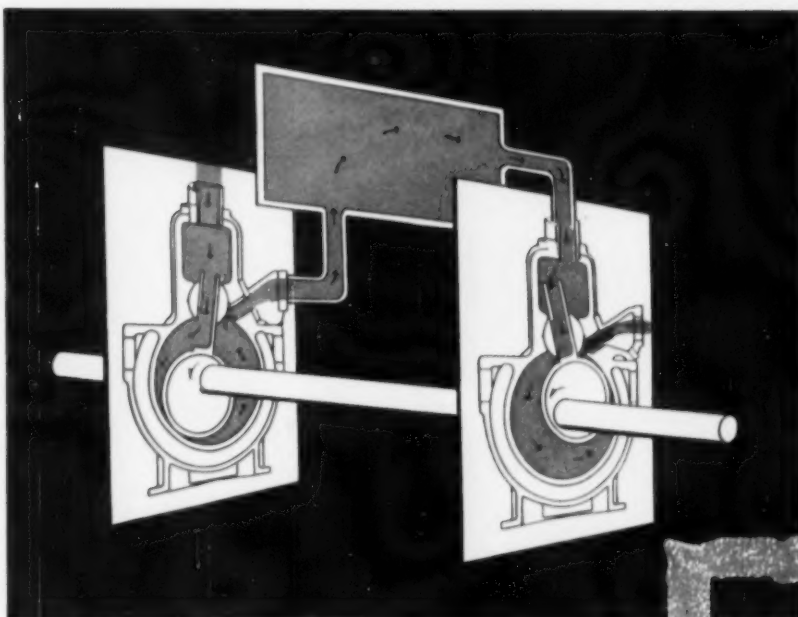
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OCTOBER, 1956 • COMMERCIAL REFRIGERATION



**SUPPLY
SUPERIOR
SERVICE**

with **Kinney**® **Portable Compound
High Vacuum Pumps (for Industrial
Refrigeration & Air Conditioning Systems)**

- Designed to maintain low pressures at fast pumping speeds, rapid recovery rates.
- Portable, compact, extremely reliable, easy-to-service.
- Free air displacements of 3.0 CFM (Model KC-3R) and 8.2 CFM (Model KC-8R). Others from 2 CFM to 46 CFM.
- Two stage, series arrangement with connecting channel within cylinder acting as oil supply chamber for high vacuum side . . . and as expansion chamber between the two stages.
- Cleaner vacuums because high vacuum side continually sealed from own oil supply by vacuum purified oil.
- Design eliminates any mechanical contact assuring years of continuous, repair-free service.
- Request Bulletin 403 for detailed data, pumping speed curves, etc.

For superior vacuum equipment, contact the Vacuum Equipment Division of The New York Air Brake Company at address below.

Our engineers will gladly make recommendations on any of your vacuum equipment requirements. Send for complete data today . . . or contact one of our competently staffed district offices . . . in Baltimore, Charleston, W. Va., Charlotte, Chicago (La Grange), Cleveland, Detroit, Houston, Los Angeles, New Orleans, New York, Philadelphia, Pittsburgh, San Francisco, St. Louis . . . or The International Sales Office, 90 West St., New York 6, N. Y.



Model KC-3R



Model KC-8R

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today**

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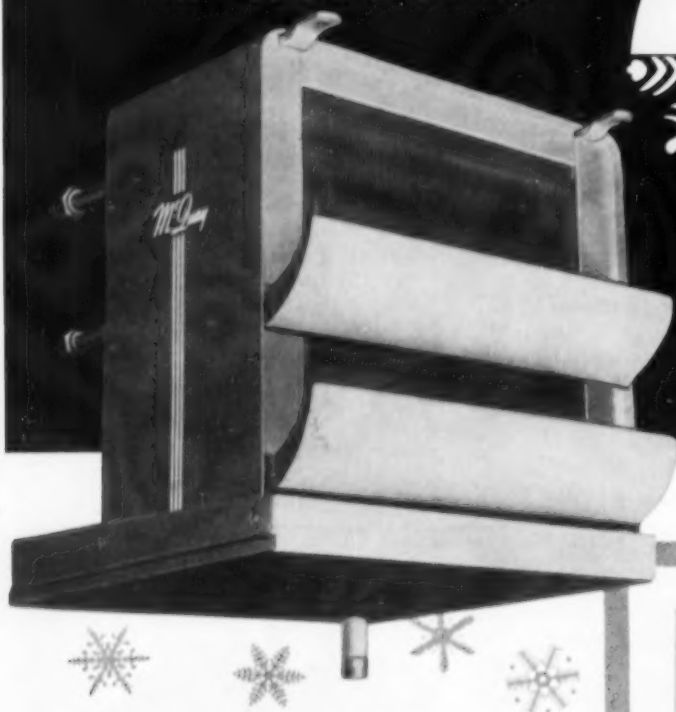
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Maximum Cooling Capacity Guaranteed

by **McQuay**

Hot Gas Defrost Units



Automatic 3 hour
defrosting cycle
minimizes evaporator frosting...
coils deliver maximum cooling.



No need for manual attention—McQuay Hot Gas Defrost Systems *automatically* defrost 4 or 8 times a day to guarantee maximum cooling capacity from the McQuay Hot Gas Defrost Unit Cooler. A timer periodically reverses the refrigerant flow ("Reverse Cycle") thereby defrosting the evaporator coil. All parts of the refrigeration system are thoroughly defrosted on each cycle preventing cumulative icing of line, valve and drain pan that ordinarily result in costly service problems.



TYPE "X" ZEROPAK



TYPE "L" ZEROPAK

TWO MANUAL WATER DEFROST UNITS

Centrifugal fan units for large low temperature rooms such as locker plants, ice cream holding, fish storage and frozen food storage.

See your McQuay Wholesaler!
Prompt delivery from four
strategically located warehouses.



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HEATING • AIR CONDITIONING • REFRIGERATION

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Super-Dry Refrigerants

Jenni Genetron Says: "No matter where you are there's a genetron wholesaler near you!"

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TRICHLOROMONOFUOROMETHANE

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genetron 141 GREEN LABEL
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genetron 226 PURPLE LABEL
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genetron 320 DARK BLUE LABEL
DICHLOROTETRAFLUROETHANE

FREE! Valuable Folder!

Ask your wholesaler for special folder on Genetron Super-Dry Refrigerants. Contains pressure-temperature charts and other helpful information.

Coast-to-coast, America's leading Refrigeration and Air Conditioning Wholesalers feature Genetron Super-Dry Refrigerants. There's one as near to you as your telephone ready to supply you with complete stocks of Genetron Refrigerants and with up-to-the-minute data on their uses.

Remember—Genetron Refrigerants are super-dry! Their moisture content is exceptionally low; their over-

all purity extremely high. They meet the industry's most exacting refrigerant specifications . . . are freely interchangeable with comparable fluorinated hydrocarbon refrigerants produced by any other manufacturer. Follow the industry-wide trend to Super-Dry Genetron Refrigerants. Always ask for Genetron!



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GENERAL CHEMICAL DIVISION

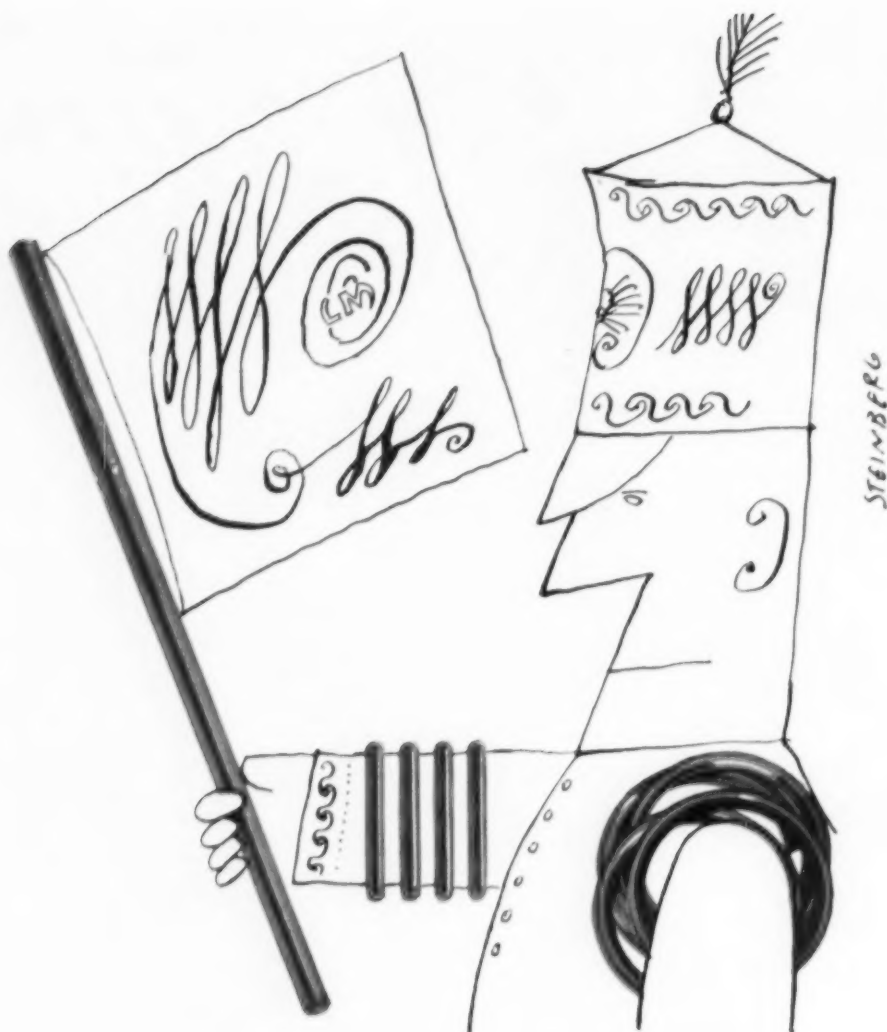
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One of a series appearing
in **FORTUNE** and leading
architectural magazines.

top brass

Relax our standards? Never!

Lewin-Mathes' rating in the Copper Tube and Pipe Field is *Specialist—1st Class*. With production and distribution facilities designed specifically for our sole specialty, we can't risk jeopardizing the ready acceptance enjoyed by Lewin-Mathes products.

That's why our plant is completely integrated . . . so we *ourselves* can control quality from raw material to packaged tube. And our 25 Branch Offices and 36 Mill Depots often enable us to provide over-night service when needed.

Consult with the "top brass" handling your next plumbing, heating or air conditioning installation about standardizing on Lewin-Mathes Seamless Copper Tube and Pipe. Our singleness of purpose is your guarantee of *perfection!*

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SAINT LOUIS, MISSOURI

MANUFACTURERS OF
COPPER AND BRASS TUBE PIPE AND ROD

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OCTOBER, 1956 • COMMERCIAL REFRIGERATION

New McIntire DC FILTER-DRIERS

with **PERMASORB**



It's like getting
3 Driers for the
Price of 1



**give 3 TIMES More
Protection**

Now—buy the same size DC Filter-Drier as before, pay the same price—but get *triple* drying and filtering protection.

300% more drying capacity—3 times greater protection against moisture, acids and system failures because it is charged with the sensational new PERMASORB desiccant.

PERMASORB is a blend of drying agents designed to give maximum balanced drying at high, low and minute concentrations of moisture over the entire range of liquid line temperatures.

ADVANTAGES

- 3 times more drying capacity.
- Need not be installed in cool location—holds moisture under all refrigeration conditions.
- Ideal for extra-low temperature jobs.
- Neutralizes acids quickly.
- Best for all refrigerants—a must for refrigerant 22.
- Will not break down under extremes of moisture or acid.
- Dries super-fast, gets systems operating promptly.

ASK YOUR
WHOLESALE FOR
DC FILTER-DRIERS
WITH PERMASORB

Install them for faster drying, longer protection, fewer callbacks, bigger savings.

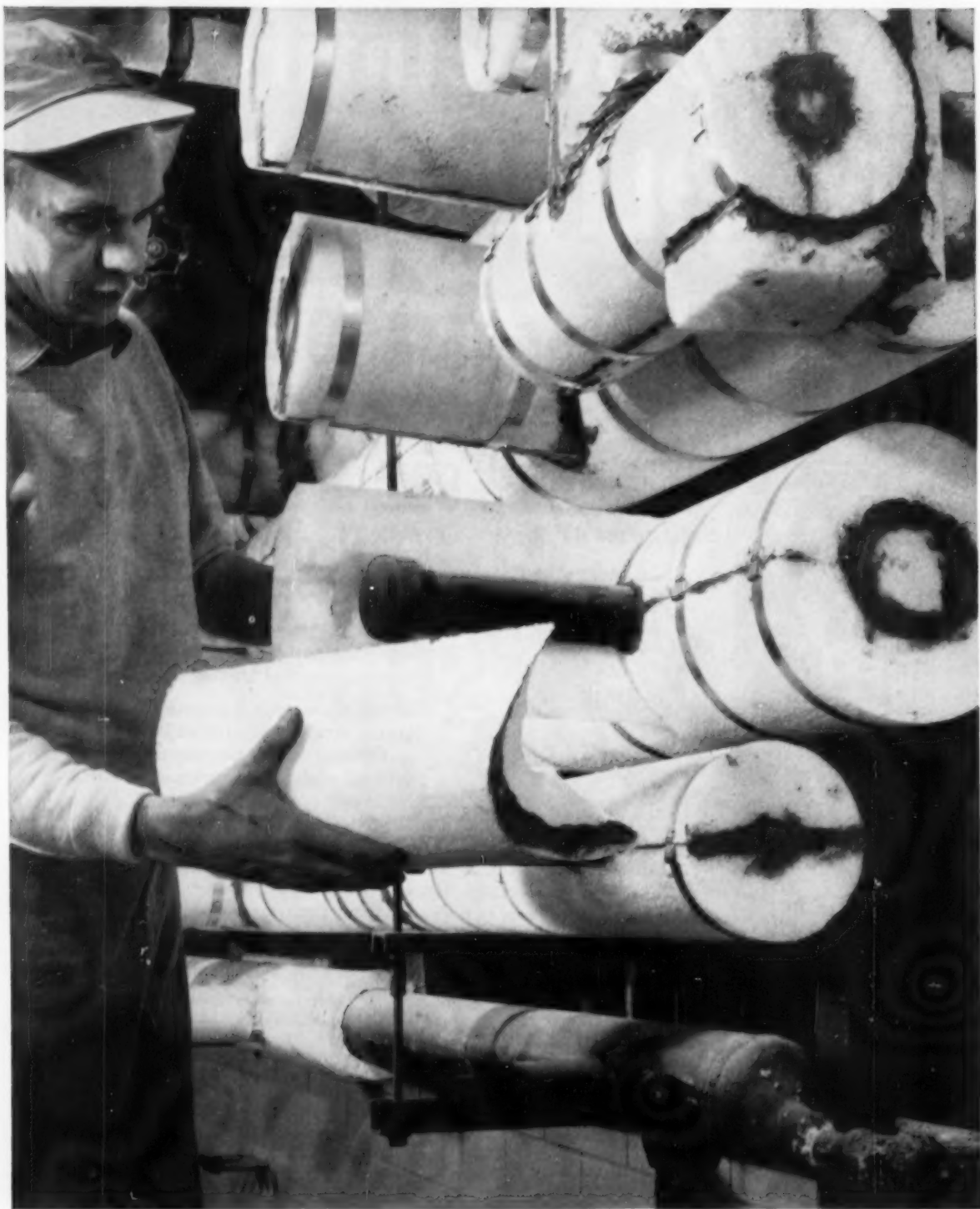
Since 1925

OFN
FROST-N-DAVE

THE MCINTIRE COMPANY, Livingston 11, New Jersey

DRIERS • FILTERS • STRAINERS

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**Michigan State University
chooses Styrofoam**

for its low "K" factor and lifetime efficiency. Among the long list of satisfied Styrofoam users is this leading educational institution. The new Animal Industry Building at East Lansing, Michigan, contains 42 refrigerated rooms—completely insulated with Styrofoam! All low-temperature pipes are insulated with Styrofoam—its lightweight, easy forming and non-flaking qualities assure fast, economical installation.

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OCTOBER, 1956 • COMMERCIAL REFRIGERATION

Only Styrofoam offers all seven

properties required in low-temperature insulation

Check the unique combination of properties found only in Styrofoam® (a Dow plastic foam):

1. Permanently low "K" factor. 2. Waterproof. 3. Highest strength-weight ratio. 4. Lightest of all rigid insulations. 5. Fabricates easily. 6. No food value—resists vermin and decay. 7. Lowest cost per year of service. Here are four users—read about their experiences with this entirely new type of lifetime insulation.



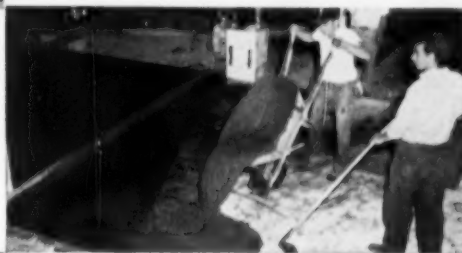
T. Jack Conn specifies Styrofoam

for light weight and high structural strength. This Milton, N. Y., cold storage and freezer plant recently completed a 50' x 85' freezer using Styrofoam in two 4" layers as combination roof deck and insulation and two 3" layers in walls and floor. The concrete wearing floor was poured directly over Styrofoam without additional support!



Winton Cold Storage selects Styrofoam

for its ease of installation. The officials of this Texas company wanted a clean, lightweight, easy-to-handle insulation for fast, economical installation. Styrofoam offered all these properties and more. Finishes bond easily and permanently to it, and Styrofoam can be easily cut and shaped.



Park & Shop Stores prefer Styrofoam

for superior resistance to rot, mold, moisture. In West Haven, Connecticut, this Grand Union Market used Styrofoam for the insulation of its four coolers and one freezer. Tests prove Styrofoam unaffected by water or water vapor, does not attract insects or rodents.

No other low-temperature insulation can match this unique combination of properties.

	LOW "K" FACTOR	SUPERIOR WATER RESISTANCE	EXCELLENT COMPRESSIVE STRENGTH	LIGHT WEIGHT	EASE OF HANDLING	SUPERIOR RESISTANCE TO VERMIN & DECAY	LOW INSTALLATION COST
STYROFOAM	✓ Permanently Low Avg. 0.25	✓ Remains Dry and Assures Constant "K" Factor	✓ Highest Strength-Weight Ratio of Any Insulation	✓ Lightest of All Rigid Insulations. Avg. Density, 1.8 lbs. per cu. ft.	✓ Pleasant—Fabricates Easily with Common Tools. Doesn't Crumble	✓ Has No Food Value	✓ Lowest Cost, Too, Per Year of Service
INSULATION A		✓	✓			✓	
INSULATION B	✓			✓			
INSULATION C	✓		✓				

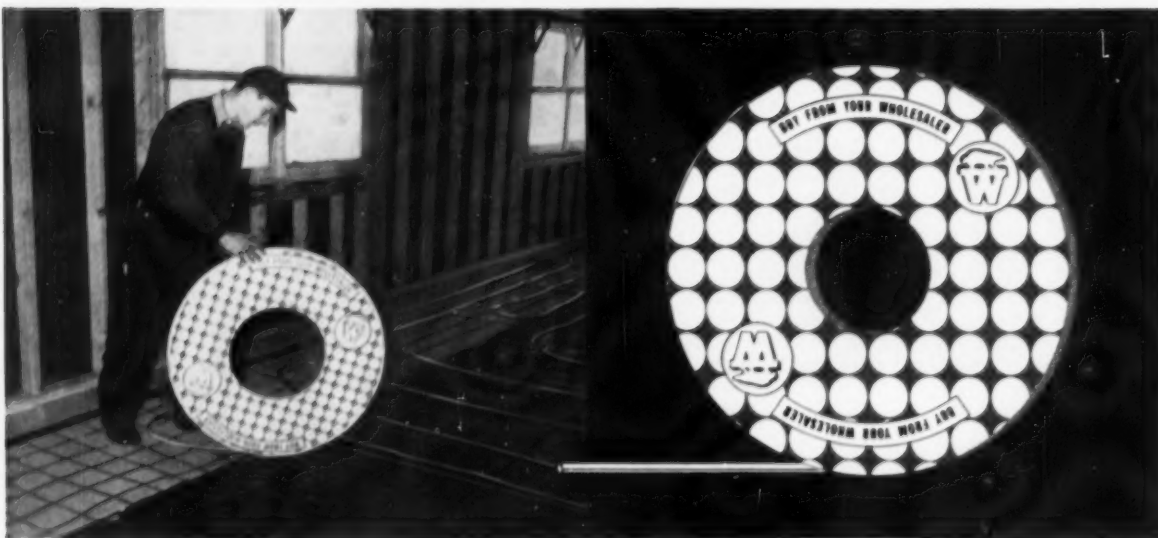
For further information on handling Styrofoam, contact your nearest distributor or write direct to Dow Plastics Sales Department PL 506G-1, THE DOW CHEMICAL COMPANY, Midland, Michigan. Western Foam Products, Inc., Colma, Calif. • Pacific Foam Products Co., Los Angeles 13, Calif. • The Putnam Organization, Inc., Chicago, Ill. • Seward Sales Corp., Elkhart, Ind. • Styro Products, Inc., Kansas City, Kansas • Atlantic Foam Products Co., Ipswich, Mass. • Per-Foam, Inc., Detroit, Mich. • Floral Foam Products, Midland, Mich. • Edwards Sales Corp., Minneapolis, Minn. • Styro Sales Co., New York City • William Summerhays Sons Corp., Rochester, N.Y. • Structural Foams, Inc., Cleveland, Ohio • G. & W. H. Corson, Inc., Plymouth Meeting, Penn. • The Emerson Co., Houston, Texas • Utah Lumber Co., Salt Lake City, Utah • Wiley-Bayley & Company, Seattle, Wash. • S & S Sales Corp., Milwaukee, Wis. • Durofoam Insulation, Ltd., Kitchener, Ontario, Canada.

you can depend on DOW PLASTICS

DOW

a reel

with every roll of copper tube ...and it costs no more



Let's suppose that on your next job you'll be laying lines of copper tube for a radiant heating installation. There are two ways it can be done.

You can use the old-fashioned, hard-to-handle bunch type coil or you can do it the fast, modern way with Wolverine Roll-O-Tube®—copper tubing in the carton with the "built-in" reel.

With Roll-O-Tube all you do is hold the tube as you roll the carton back. The resulting line is achieved quickly and easily, is dead straight and free from aggravating kinks. Making the many bends necessary in radiant heating

is just as easy. All you do is steer the carton in the required radius—you'd think the bends were machine made.

Roll-O-Tube helps you in other ways, too. It rolls like a hoop, is easy to carry and features a zip-quick gummed tape opening. And don't worry about unused tube. It remains in the carton—protected against damage and dirt—ready for instant use.

As we said there are two ways to handle radiant heat installations. Next time try the Wolverine Roll-O-Tube way—it's a "reel" time saver.

BUY FROM YOUR WHOLESALE

DIVISIONS OF
CALUMET & HECLA, INC.
CALUMET DIVISION
WOLVERINE TUBE DIVISION
CANADA VULCANIZER
& EQUIPMENT CO., LTD.
FOREST INDUSTRIES DIVISION
GOODMAN LUMBER CO.



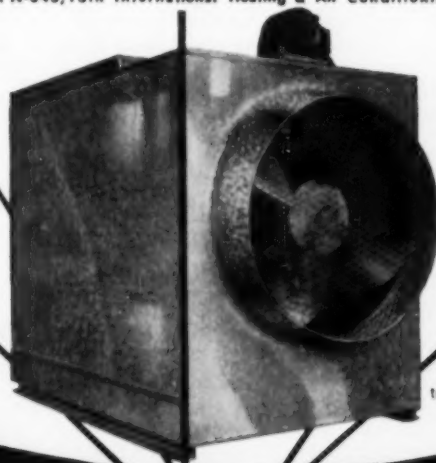
WOLVERINE TUBE

Division of Calumet & Hecla, Inc.
1405 CENTRAL AVE., DETROIT 9, MICH.

Manufacturers of Quality Controlled Tubing and Extruded Aluminum Shapes

PLANTS IN DETROIT, MICHIGAN, AND DECATUR, ALABAMA. SALES OFFICES IN PRINCIPAL CITIES
Circle No. 17 on Reader Service Card

See the Dover Complete Line in Booth N-343, 13th International Heating & Air Conditioning Exposition, Chicago, Feb. 25-March 1, 1957



Series CF horizontal induced draft tower. Vertical induced draft and natural draft towers also available.

DOVER TOWERS

ARE HOT DIP GALVANIZED*

TO STOP RUST COLD!

*After Fabrication

Why Dover Hot-Dip Galvanizes After Fabrication

Why doesn't Dover simply use mill galvanized steel? The answer is simple — the results are important. Shearing, braking, forming and welding operations on mill galvanized steel tends to destroy the zinc coating, leaving certain spots unprotected. Once the protective zinc coating is removed, rust and corrosion go to work causing costly damage. For this reason, Dover does all the fabricating first, and then hot dips the entire assembly. The result is complete protection against rust and corrosion.

No Costly Rust, Corrosion No Unsightly Appearance

Dover packaged cooling towers, 2 to 100 tons capacity, are hot-dip galvanized after fabrication for two very important reasons; first, to provide you with a cooling tower that will not be damaged by costly rust and corrosion. Second, to provide you with a tower that will stay new looking after many months of use.

ONLY DOVER GIVES YOU THIS COMPLETE ASSURANCE AND PROTECTION AT NO ADDITIONAL COST!

FREE OFFER

Send today for a copy of Dover Catalog. Gives all the facts and specifications of Dover's complete line.



DOVER PACKAGED COOLING TOWERS MEET THE RIGID REQUIREMENTS OF THE NEW YORK CITY DEPARTMENT OF BUILDING

DOVER Mfg. Co.

Dept. 101, 3117 Weatherford Ave., Independence, Missouri

☐ Send copy of Dover Catalog.

☐ Send name of nearest Dover representative.

NAME

FIRM

ADDRESS

CITY ZONE STATE

Circle No. 18 on Reader Service Card

ABOUT PEOPLE

William F. Koubek has been named president and a member of the board of directors of Acme Electric Corp., Ltd. of Toronto. He succeeds E. A. Miller, who continues as a member of the board of directors. Koubek joined Acme



W. F. Koubek

Electric in 1932 when the firm was in Cleveland. **Karl Crease**, with the Cuba, N. Y., corporation since 1951, steps up from assistant to general plant manager.

John McManus has been appointed a direct factory salesman for Lancaster Pump and Mfg. Co., to serve distributors in Tennessee, Kentucky, West Virginia, and Virginia. The company also has named **Harry Raskin** as sales representative for Florida. McManus will operate out of Roanoke, Va. Raskin has headquarters at Miami Beach, Fla.

Philip E. Bracht has been named district sales engineer in the greater Chicago area for Brunner Mfg. Co., and The Brunner Co. Bracht will be under the direction of T. Jack Lyon, district sales manager. Previously, he jointly managed F. W. Johnson Corp. and Purair Gas



Corp., both of Terre Haute, Ind. He also was assistant field sales manager of the cooling division of Union Asbestos and Rubber Co.

W. H. (Hank) Evans has been elected president of Minneapolis-Honeywell Regulator Co., Ltd. Evans, general manager since 1941 and a vice president since 1951, takes over the presidency from **Harold W. Sweatt** who has been elected board chairman.

Russell E. Bryant has been appointed by Wagner Electric Corp. to manage the electrical division of its Los Angeles branch. He succeeds **Leonard G. Tandberg** who retired after nearly 47 years with



Wagner. Bryant, a sales engineer in the firm's Pittsburgh office from 1942 to 1949, for the past seven years has been manager of the Buffalo sales and service branch.

Drayer-Hanson has announced several key reorganizational changes, additions, and a reallocation of sales engineers' territories within its sales division. **Andrew Gonzales**, sales engineer, has been elevated to assistant to sales manager. A revised allocation of field territory assigned to sales application engineer **William Keichline** is defined as those areas surrounding Austin, Houston, and Dallas, Tex.; Boston; Denver; Kansas City; Little Rock, Ark.; Wichita, Kans.; New Orleans; and San Diego. **Irving Secord**, sales application engineer, will service El Paso; Minneapolis; Missoula, Mont.; Miami; Salt Lake City; Omaha; Phoenix; Portland; and San Francisco. Hawaii and the export division of Drayer-Hanson also are included. **Harvey Lange**, recent addition to the sales appli-

cation engineering staff, will handle original equipment manufacturer and commercial refrigeration accounts.

James W. Riley has been elected president of Deering Air Conditioning Co. He succeeds **Tom Deering**, who resigned. Associated with Deering since February, in a sales advisory capacity, Riley negotiated the recent \$1,339,000.00 contract with the developers of Arrowhead Village, Kansas City. Prior to joining Deering he was president of Victor National, Inc., manufacturers of commercial freezer equipment.



G. T. (Ted) Kellogg has been appointed assistant to the director of public relations of the Air-Conditioning and Refrigeration Institute. Kellogg, identified with the publication and public relations fields in the Washington area for the past 25 years, will report directly to George E. Mills, ARI director of public relations. Kellogg's responsibilities will include editorship of ARI's monthly publication, "Koldfax."

Les Brosell has been appointed district manager for Typhoon Air Conditioning Co., Div. of Hupp Corp. Brosell formerly was with Chrysler Airtemp Div. as district manager and assistant regional manager of the west coast regions. Prior to his last assignment he was merchandise manager with Rudy Fur-



nace Co. for six years. Making his headquarters in Los Angeles, he will cover the California, Arizona, and Nevada territories.

Karl Pattermann, former vice president and treasurer, is now president of Dunhill Soda Fountain Corp. Charles Pecorella, for-



K. Pattermann

C. Thaw

mer president, has resigned due of illness. **Carl Thaw**, former secretary, becomes secretary-treasurer of Dunhill.

C. K. Olson Jr. has been elected vice president and director of sales of all products manufactured by Yates-American Machine Co. For the past two years Olson has been coordinator of sales for the



Head & Knife and Lipman Refrigeration Div. as well as the J-Line, Power Tool, and Heavy Woodworking Div. He also will direct the sales program of the Heat Transfer Products Div. He joined the firm in 1954.

Clyde H. Stephens, Jr., has been appointed sales manager of the newly created Bakery Equipment Div. of Federal Refrigerator Mfg. Co. Stephens, formerly had been with Birn Co., one of the largest and oldest distributors of Federal equipment, for nearly 15 years, the last five years as sales manager.

Frank J. Nunlist has been appointed to the newly created position of executive vice president of Mueller Climatrol, a subsidiary of Worthington Corp. **H. P. Mueller Jr.**, vice president, has been named to succeed Nunlist as vice president in charge of sales. Nunlist, who joined the firm in 1941 as assistant chief engineer, has been sales vice president since 1954. He is a former president of the Wisconsin chapter of the American Society of Heating and

Air Conditioning Engineers. Mueller Jr. represents the fourth generation of Muellers to actively participate in company management. He has been with the firm since 1948.

B. W. Steinkuller has been appointed Pacific district manager of commercial operations for York Corp. Now headquartered in Los Angeles, Steinkuller formerly head-



There's
nothing
like
high
reserve
capacity!



PA[®] 400 has the highest capacity for moisture adsorption under the most adverse conditions in refrigerator operation . . . higher than any other desiccant. This reserve capacity is a safety factor. PA 400 keeps the refrigerator running even though there is sufficient moisture in the system to completely "saturate" other desiccants.

No other refrigeration desiccant gives you as much as PA 400 . . .

- Highest capacity
- Minimum pressure drop
- Physical adsorption not chemical action
- Non-dusting
- Adsorbs acids
- Dries refrigerants to below 2ppm at 120° F.
- Non-deliquescent
- Does not channel

Progress Through Chemistry



DAVISON CHEMICAL COMPANY

Division of W. R. Grace & Co.

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Producers of: Catalysts, Inorganic Acids, Triple Superphosphates, Superphosphates, Phosphate Rock, Silica Gels and Silicofluorides. Sole Producers of DAYCO[®] Granulated Fertilizers.

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ed the San Francisco branch of York's Pacific district. He has been with York for 10 years. He replaces **Clifton Sowers** who has served the firm in an exclusive capacity for many years. Sowers will continue with the company as a consultant to the Pacific district office.

Three new district managers have been appointed by Mueller

Brass Co. **E. L. Treppa** has been assigned to the New England territory with offices at Cambridge, Mass. **Vincent A. Bower** is director of the Dallas branch. **George I. Duddy** takes over the New Orleans territory. **Richard C. Haenke** and **Milton Gkekis** have been appointed sales representatives for the Detroit and Chicago offices respectively.

BUY FROM YOUR REFRIGERATION WHOLESALER

Ray Legg now is associated with Warren Co., Inc., in a sales capacity as special-accounts executive. Prior to joining Warren, Legg was with Weber Showcase & Fixture Co. Previously, he was president of Refrigeration Corp. of America, and assistant general manager of Kelvinator Div. of Nash-Kelvinator. He is making his headquarters in New York City.

Stanley F. Korol has joined National-U.S. Radiator Corp. as an industrial designer. Korol is on the staff of K. O. Schlentner, manager of the heating and air conditioning engineering division, with headquarters in Johnstown, Pa. Previously, he was an industrial designer for Westinghouse Electric Corp.

George Sharkey has been named west coast assistant regional manager for Airtemp Div., Chrysler Corp. Sharkey, prior to his present appointment, was district manager. He succeeds L. D. Brosell who recently resigned. Sharkey has been with Airtemp and the company's west coast sales activities since 1950. He also has held district representative and district manager sales posts.

Lawrence P. Brady has been appointed national account sales coordinator for air conditioning and refrigeration equipment in Worthington Corp.'s New York district office. Previously, Brady was with Allan Air Products Corp. and Rogers Diesel and Aircraft

Here is your gauge ...



...for permanent installation on **FREON-12** and **FREON-22** systems...

Today's gauge for today's job on those Freon systems. Highly accurate and built down to the last detail to stay accurate.

The corresponding temperature scales are in color. Note the wide ranges of sizes and readings in F-12 and F-22 types.

Here is the gauge for permanent installation on refrigeration systems . . . with the Marsh "Recalibrator" to keep it permanently accurate. Write for facts or **See Your Jobber**

MARSH INSTRUMENT CO., Sales Affiliate of Jas. P. Marsh Corporation
Dept. P, Skokie, Ill. • Marsh Instrument & Valve Co. (Canada) Ltd., 8427
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MARSH Refrigeration Instruments

GAUGES • WATER REGULATING VALVES • SOLENOID VALVES • HEATING SPECIALTIES

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Wide Range of Sizes and Pressures

- ✓ Dial sizes: 2 1/2", 3 1/2" and 4 1/2" for Freon-12 or Freon-22.
- Dial size, 2 1/2" only for gauges with both Freon-12 and Freon-22 scales.
- ✓ Dial range for pressure gauges: 0-300 lbs. and 0-400 lbs. For compound gauges, 30" x 150 lbs., 30" x 300 lbs., 30" x 400 lbs.
- ✓ All gauges have "Recalibrator." All except 3 1/2" and 4 1/2" gauges standard with 1/8" male bottom connection and restriction screw in socket. 3 1/2" and 4 1/2" gauge have 1/4" N.P.T. connection.

SIGNED

CHASE COPPER REFRIGERATION TUBE

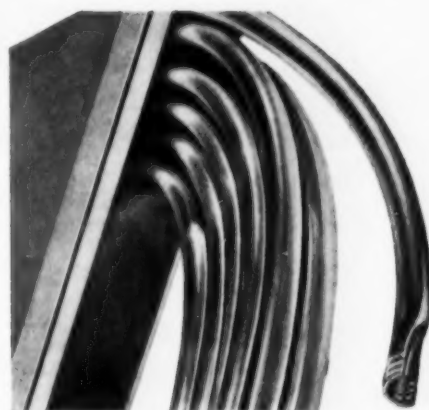
is signed with this famous trademark that assures you of top quality. It's extra-soft copper refrigeration tube. Bright, clean, completely moisture-free!



SEALED

CHASE COPPER REFRIGERATION TUBE

is sealed at both ends. Double crimping keeps out all dirt and moisture. Crimp is the same size as the tube itself. Can be passed through any opening large enough for the tube.



DEPENDABLE

CHASE COPPER REFRIGERATION TUBE

comes to you in fully identified, compact cartons. It's 50 feet of the finest tube made. Free from flaws. Bends easily. Can be flared precisely.

Use Chase *extra-soft* copper refrigeration tube and Chase wrought copper fittings to make rugged, gas tight systems that *stay* trouble-free! Your Chase wholesaler has it in the sizes you need.

Order some for your next job!



Chase



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The Nation's Headquarters for Brass & Copper

Atlanta	Chicago	Denver	Indianapolis	Minneapolis	Philadelphia
Baltimore	Cincinnati	Detroit	Kansas City, Mo.	Newark	Pittsburgh
Boston	Cleveland	Grand Rapids	Los Angeles	New Orleans	Providence
Charlotte	Dallas	Houston	Milwaukee	New York	Rochester
	St. Louis	San Francisco	Seattle	Waterbury	

Circle No. 21 on Reader Service Card

& AIR CONDITIONING • OCTOBER, 1956

23

Co. where he served as vice president in charge of engineering and sales, and as manager of the air conditioning department respectively.

Schumacher has been promoted to vice president in charge of research. Harold Mazza has been appointed to the newly established position of manager, research, at the Los Angeles plant.

Three key personnel changes have been announced by American Potash & Chemical Corp. Daniel S. Dinsmoor has been named vice president in charge of planning and development. Joseph C.

Clinton F. Hegg, vice president of L.O.F. Glass Fibers Co., has been named general sales manager of the company. He was formerly in charge of the automotive

sales division. Hegg will headquarter at the firm's general offices in Toledo, directing sales activities in the automotive, textile mat and general products divisions.

McQuay, Inc., announces the appointment of E. L. Freemire



as heating and air conditioning representative for Baltimore and surrounding areas of eastern Maryland. Freemire recently was vice president of Energy Control Co., Philadelphia, prior to establishing his own business in 1953.

Barry T. Benson has been appointed international sales representative for Drayer-Hanson. Benson will represent Drayer in all areas outside the continental limits of the United States where the firm does not already maintain local-area representation. Formerly, he was commercial attache and first secretary to the American Embassy, Mexico, D. F. He will headquarter at 354 S. Spring St., Los Angeles.

Robert S. Dutton has been appointed to the sales force of Air Duct Div., Wiremold Co. Dutton will work out of the main office in Hartford with mechanical contractors on air conditioning and dust control duct problems. He was formerly in the public relations department of Champion, Inc.

Gordon N. Gray has been named to the newly-created position of manager of manufacturing for all of Bryant's plants. Gray, who has been plant manager of Bryant's headquarters plant at Indianapolis since 1953, takes over manufacturing supervision of the company's plants at Tyler, Tex.,

HENRY


The most complete line in sizes and types for refrigeration and air conditioning manufacturers, contractors and service men.

VALVES




PACKLESS
WING CAP
AMMONIA

DRIERS



NON-REFILLABLE
CARTRIDGE

STRAINERS

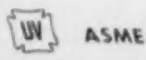


ANGLE
"Y" TYPE

RELIEF VALVES



STRAIGHT-THROUGH AND ANGLE



NB National Board Certified

HENRY VALVE COMPANY

3215 North Ave. • Melrose Park, Ill.

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- 1 • A COMPLETE LINE OF ELECTRICAL EQUIPMENT
- 2 • THE COUNSEL OF QUALIFIED FIELD ENGINEERS
- 3 • IMMEDIATE AVAILABILITY FROM YOUR LOCAL SQUARE D DISTRIBUTOR

SQUARE D GIVES YOU ALL 3!



Magnetic Starters



Safety Switches



Control Relays



Fractional HP Starters



Timing Relays



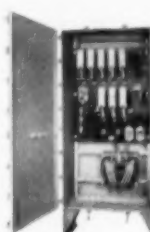
Combination Starters



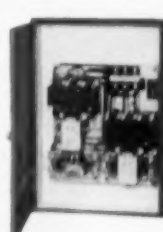
Panelboards



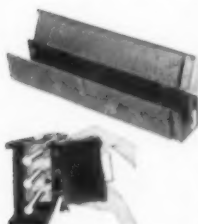
Primary Resistance
Type Starters



Auto-Transformer
Type Starters



Part Winding
Type Starters

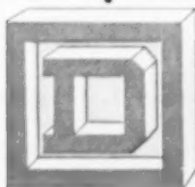


Wireways and
Busways



Pushbuttons and
Accessories

• You name the air-conditioning job—Square D has the right electrical equipment for it—from the smallest residential installation to the largest commercial or industrial job through 200 HP at 440 volts.



NOW...EC&M PRODUCTS ARE A PART OF THE SQUARE D LINE!

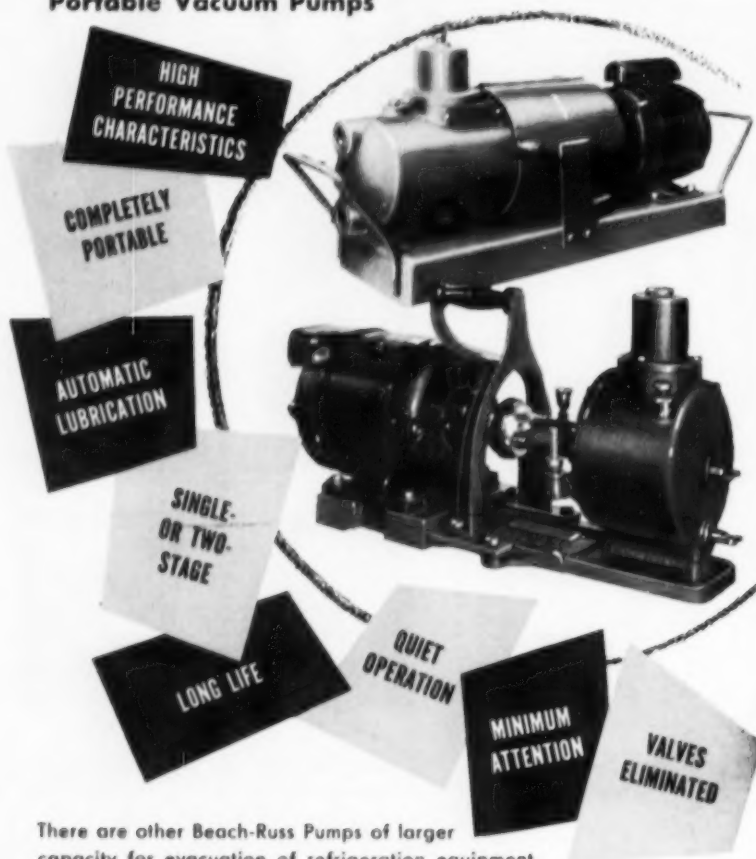
SQUARE D COMPANY

Everything

THE SERVICE MAN NEEDS

for Air-Conditioning and Refrigeration Test Work
is Found in BEACH-RUSS

Portable Vacuum Pumps



There are other Beach-Russ Pumps of larger capacity for evacuation of refrigeration equipment on a production basis.

BEACH-RUSS COMPANY

50 CHURCH STREET • NEW YORK 7, N. Y. DEPT. 56

Send descriptive literature covering

☐ Model O Single-Stage Vacuum Pumps.

☐ Model A Two-Stage Pumps.

Name

Company

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City

Zone No.

State

BEACH-RUSS COMPANY

50 CHURCH STREET

NEW YORK 7, N. Y.

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and New Lexington, Ohio, as additional responsibilities of his new position.

John W. Newton, former account executive with Harshe-Rotman, Inc., national public relations agency, has joined the public relations department of Carrier Corp. He will serve as national publicity representative.

William A. Marshall has joined the staff of the Trane Co.'s Product Engineering Dept. as a development engineer. He will work in connection with the company's development program on packaged air conditioning systems.

H. M. Alpert has been appointed field representative for Florida and southern Georgia by Character Refrigerators Co. which has opened a Florida office at 225 E. Princeton St., Orlando. Alpert serviced the entire metropolitan New York area for the past 15 years.

John B. Heil, application engineer of Century Electric Co.'s Atlanta office, has been assigned to the post of acting district manager at Birmingham. Heil has been associated with Century for several years. The Birmingham office is located at 831 N. 19th St.

Leonard J. Rogan has been named quality control superintendent for Carrier Corp.'s Day & Night and Payne Divs. at Monrovia, Calif. Rogan will be responsible for quality control inspection of all Day & Night and Payne products.

George L. Leupold has been appointed assistant general sales manager of Fulton Sylphon Div. of Robertshaw-Fulton Controls Co.

Dead soft

Bend dead-soft DRYSEAL tube with your fingers. No tools needed. Flares without splits, too. Double crimp keeps its I. D. smooth, clean and dry. Crimps are tube-size, slip easily through fittings. Sizes $\frac{1}{8}$ " to $\frac{3}{4}$ ". Try economical DRYSEAL on your next job.



You'll like the job-size
50 foot one-coil pack.

Revere Dryseal

COPPER REFRIGERATION TUBE

You'll find a Revere Distributor close at hand.

REVERE COPPER AND BRASS INCORPORATED, founded in 1801 by Paul Revere

Leupold will make his office at division headquarters, Knoxville, Tenn. He joined the company in 1946 as district manager of the Cincinnati office.

Gilbert T. Stacy has been appointed Charlotte district manager for Unitary Equipment Div. of Carrier Corp. Stacy will locate his headquarters in the Carrier building at 2610 South Blvd., Charlotte.

He has been with Carrier for 12 years. Prior to his new appointment, he was sales specialist for the corporation's applied and self-contained air conditioning equipment.

John F. Corcoran has been promoted to general manager of the Union Asbestos & Rubber Co.'s Equipment Steel Products, Equipment Specialties, Coldmobile and

Hand Brake divisions, and **Emil T. Johnson** has been named general manager of the Fibrous Products division.

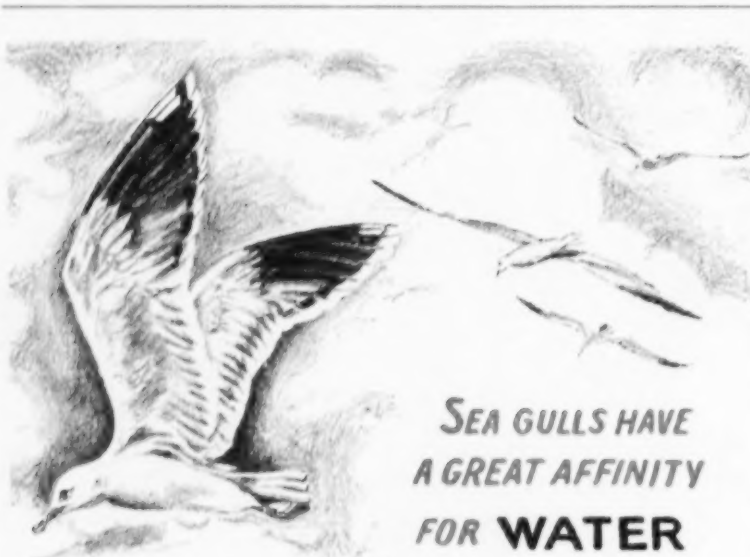
Henry J. Linskey has been named sales engineer for the Philadelphia-Wilmington area, for Thatcher Furnace Co. Prior to joining Thatcher, Linskey operated his own heating and air conditioning business in Philadelphia.

Stanley Silber has been appointed director of sales for Lewyt Air Conditioner Corp. Silber joins Lewyt after serving as vice president in charge of sales for James Mfg. Co.

Henry Robins has been appointed executive vice president of Water Service Laboratories, Inc., New York City chemical engineers and specialists in water treatment. Robins joined the firm 20 years ago as advertising manager, and has been general manager since 1948.

Harold C. Cook has been named as Atlanta district self-contained Weathermaker air conditioning specialist for Unitary Equipment Div. of Carrier Corp. Prior to joining Carrier, Cook was employed by the M. T. Gossett Co. Nashville, Tenn.

M. Everett Barnard has been named manager of Carrier Corp.'s unit heater department. Barnard has been with this department since 1929 and sales manager since 1954. He is a member of the American Society of Heating and Air Conditioning Engineers, and former president of its Philadelphia chapter.



These strong, rugged travellers frequently fly great distances in search of new water spots, from which they take their food and on which they often float and roost.

THAWZONE, the travelling dehydrator, also has a powerful affinity for water.

...searches it out in refrigeration systems and destroys it wherever found.

THAWZONE DOES MANY OTHER THINGS:

1. Actually destroys moisture ... not a mere anti-freeze.
2. Scavenges oxygen ... helps to overcome the harmful effect of traces of oxygen which may remain in a refrigeration system after the usual purging.
3. Cannot cause pressure drop.
4. Does not release moisture when temperature changes.
5. May be used in open or hermetic units containing any of the "Freons", methyl chloride, methylene chloride or isobutane.
6. Costs only about 8 cents per lb. of refrigerant treated. Used in minute amounts.



Why don't you try a 1 oz. bottle of Thawzone? Also available in 4 oz. and pint bottles. Call your wholesaler.



Stewart Industries, Inc.

(Formerly HIGHSIDE CHEMICALS CO.)

4 Colfax Avenue, Clifton, N. J.

BUY FROM YOUR REFRIGERATION WHOLESALER

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this Paragon 3400
series time switch

ENDS HAPHAZARD DEFROST CYCLING



... heavy-duty, industrial-type motor
is the **KEY** to dependable **ON-OFF-ON**
compressor shutdown defrosting

In time controls, ruggedness pays off! If a time control does not bring a refrigeration system out of a defrost cycle, it means *real* trouble. Where a customer formerly had ice cream to sell, he now has soup ... steaks have turned to spoiled beef.

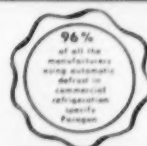
You can do something about this by making sure the 3400 series is a *standard installation* on every commercial job. You can expect a minimum life expectancy of 5 to 7½ years from the industrial-type, heavy-duty, 4-watt Telechron motor. No question about it! When you install a Paragon 3400, you assure years of continuous, dependable protection.

Isn't this the profitable way to add satisfied customers ... cut call-backs? Get all the details **NOW** on the famous Paragon 3400 series.



Especially designed for
service where defrost
cycle exceeds 2 hours.

- **INSTANT ADJUSTMENT** — add or remove quick-change dial trippers any time ... 1 to 6 defrost cycles per 24-hour period.
- **TWO COMPLETE SETS** of trippers included with each time switch.
- **"TORSION-CLUTCH" DIAL DRIVE** — turns freely for manual check, yet has positive, no-slip drive.
- **SKIP-TRIP** may be manually operated without disturbing sequence of automatic operation.
- Available in 120-v and 240-v, a-c SPST, DPST and SPDT, 30-amp, 1-hp types.



PARAGON

Also write for complete facts on these famous Paragon lines.



Commercial Refrigerator



Dehumidifier



7-Day Calendar



Fan

ELECTRIC COMPANY

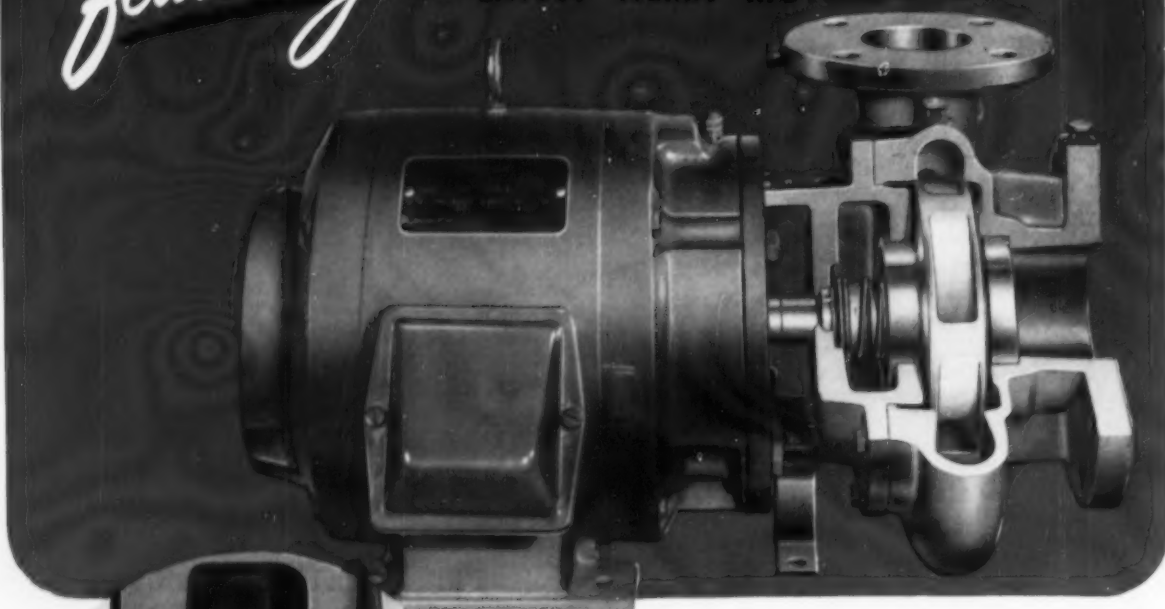
Two Rivers, Wisconsin

WORLD'S FOREMOST MANUFACTURER
OF TOP-QUALITY TIME CONTROLS

"In Canada: Automatic Electric Sales (Canada) Ltd., Toronto"

featuring...

VERTICAL SPLIT-CASE DESIGN
LEAK-PROOF MECHANICAL SEAL
LATEST "NEMA" MOTORS



FOR COOLING TOWER APPLICATIONS

B&G SERIES 1531 TYPE B CENTRIFUGAL PUMPS

In the B&G 1531 Pump you'll find an impressive array of efficiency and performance features which will satisfy your most critical appraisal—

The Motor. Heavy duty with extra large shaft and over-sized bearings. Deep grooved radial thrust bearing counter-balances thrust load. Available as open, splash-proof, totally enclosed or explosion-proof units.

Motor Pump Bracket. Barrel type for maximum rigidity...counter-bored for perfect alignment. Support foot protects against vibration and strain.

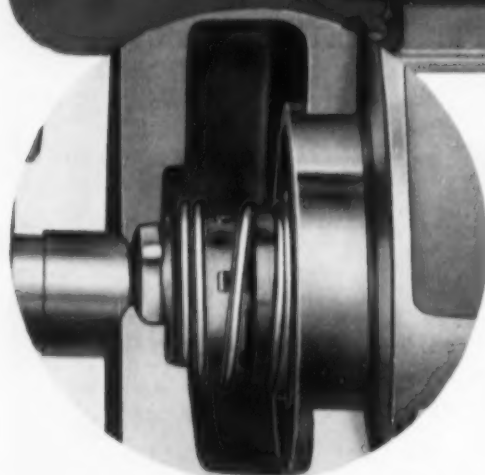
Pump Shaft. High grade steel, super-finished for smooth, quiet operation and long life...oversized for minimum deflection. Gasketed sleeve protects against wear and corrosion.

B&G "Remite" Mechanical Seal. Eliminates leakage which occurs when a packing gland is used. A Carbon Seal Ring faces on a "Remite" floating seat—a new material just a shade under a diamond in hardness—gives trouble-free service when pumping liquid containing foreign material. The Seal is self-lubricating.

One piece volute and suction cover. Solid based with support foot. All the advantages of split-case design—no pipes to disconnect when servicing the pump. Rugged construction absorbs piping strains without transmitting stress to the motor shaft.

Impeller. Sound hydraulic design, mechanically balanced. Balance ring and relief-holes reduce thrust. Precision fit on shaft assures easy removal and positive centering.

Capacities and materials. To 1100 GPM—420 ft. head. Available in all-bronze, all-iron and bronze-fitted units.



Leak-proof B&G "Remite" Mechanical Seal

SERIES 1522 CENTRIFUGAL PUMPS

Really quiet...both pump and motor are equipped with long bronze sleeve bearings! "Remite" Mechanical Seal ends leakage troubles. Bearing bracket assembly is interchangeable. Capacities to 150 GPM—heads to 115 ft.



REFRIGERATION COMPONENTS



Complete line of Evaporators, Condensers, Heat Exchangers, Liquid Receivers and Package Liquid Coolers.



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C O M P A N Y

Dept. EN-45, Morton Grove, Illinois

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OCTOBER, 1956 • COMMERCIAL REFRIGERATION

BIG NEWS

from Typhoon—

On How To Make Money This Fall!



No post-season slump for Typhoon dealers. We're going all out on a special Fall Promotion Program to bring them business when they need it most!

◀ This comprehensive folder, filled with top-notch aids and dividend features—newspaper mats, a bang-up direct mail campaign, and a host of other hit-ideas—will increase pre-season sales and profits. No need for your profits to fall this Fall if you tie in with Typhoon's special sales-building program.

10 GOOD REASONS

why a Typhoon Franchise is your Best All-Year-Round Security, too!

1. 100% advertising credit—to give you frequent sales getting newspaper advertising at the local level.
2. Aggressive and field tested fall promotion program.
3. Deferred payment plan—keeps business going strong all-year-round by offering your customers Fall and Winter installations with payments starting in May.
4. Field warehousing plan—a pay-as-you-use plan on complete inventory set up in your own warehouse.
5. Retail finance plan—low down payment with 36 months to pay.
6. Re-purchase agreement—enables you to carry more stock and sell more by increasing your present line of bank credit.
7. Close factory cooperation—you deal direct with everyone, from the Typhoon president down.
8. On-the-spot district manager—he's there to help you with any problem that comes up.
9. Regional schools—offering free sales-engineering courses.
10. Top-quality units—the largest range of waterless air-cooled equipment including 8 and 10 ton capacities. All are superbly engineered, competitively priced and built with finest components for trouble-free operation.



2-3-5-8-10-15-20-25-30-40 TONS

Write, phone or wire today for information about a Typhoon franchise in your territory...and the special Fall Promotion Program to bring you increased profits.

TYPHOON AIR CONDITIONING COMPANY • Division of Hupp Corporation

Specialists in Human Comfort Since 1909

505 Carroll Street, Brooklyn 15, N. Y., ULter 8-0800

Circle No. 29 on Reader Service Card

NOW *Make sure you get* TRIPLE-SEAL Tightness in every joint



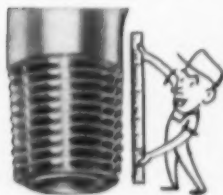
*"It's All in
the Groove"*



IMPERIAL *Triple-Seal* HEAVY DUTY FLARE FITTINGS



Imperial Heavy-Duty Triple-Seal Flare Fittings have 3 seals to give you new extra protection against leakage.



LONG LENGTH DRYSEAL PIPE THREADS

assure tighter joints — are especially valuable in providing additional takeup in reconnection.

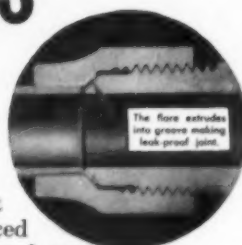


PLASTIC CAPS

on flared ends protect fittings during shipping and handling.

Assure extra protection against leakage

Here is how it works: When the flare nut is drawn up, the copper tubing is forced into the groove as well as against the two faces of the seat making a tight, *triple-seal* joint. This feature provides extra protection against leakage; enables these fittings to hold higher pressures. Groove is included on all sizes $\frac{3}{8}$ " and larger.



In addition, Imperial Triple-Seal Heavy-Duty Flared Tube Fittings are heavier than ordinary flared fittings, have greater wall thicknesses and larger wrench flats. Elbows, tees and nuts are *forged* for greater strength. Designed for refrigeration applications.

Long Dryseal pipe threads on pipe thread ends assure tight joints — are especially valuable in reconnecting.

Now, use Imperial Triple-Seal Flare Fittings . . . make sure you get this extra protection against leakage.

See Your Jobber

THE IMPERIAL BRASS MFG. CO. • 536 S. Racine Ave. • Chicago 7, Ill.

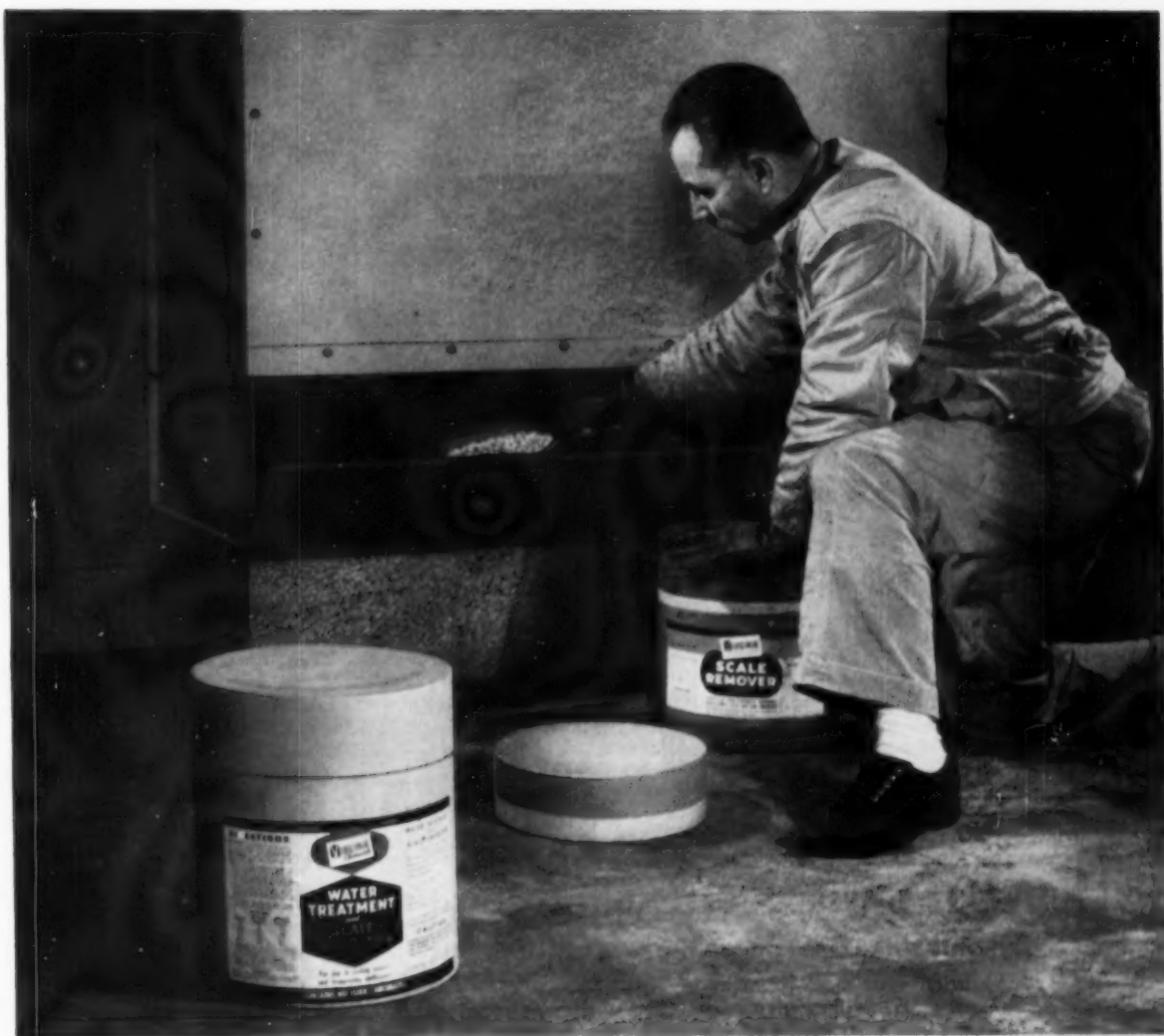
In Canada: 338 Laurier Ave., Toronto, Ontario

Ask for Catalog No. 81

IMPERIAL

FITTINGS • VALVES • DRIERS • CHARGING LINES
TOOLS for Cutting, Flaring, Bending, Flack-Off, Swaging





"Virginia's" new scale remover & scale inhibitor restore and maintain maximum heat transfer

Heat transfer efficiencies in water-cooled equipment can be maintained:

1. By scale and algae removal
2. By preventing formation of scale

These "Virginia" products are designed for corrective and preventive maintenance:

- "Virginia" Scale Remover (solid), a dry granular acid—safe to handle, and inhibited to protect expensive equipment without reducing its scale dissolving properties. It is an effective algicide. Packed in 10- and 50-pound drums. For use when water hardness is less than 200 p.p.m.
- "Virginia" Scale Remover (liquid), a blend based on hydrochloric acid, also effectively inhibited to reduce corrosion on metal surfaces. This product has 50% greater scale-dissolving capacity than similar cleaners. The wide-mouthed containers reduce the danger of splashing. Packed in 1-gallon glass bottles. For use under unusually hard water conditions.
- "Virginia" Water Treatment & Scale Inhibitor, recommended as a scale preventive in reconditioned or new equipment. It is a blend of glassy polyphosphates—nontoxic to humans or vegetable life. Requires no feeders—one treatment lasts 3 months or more. Slow, controlled solubility

is the secret. Recommended for use following scale removal from fouled equipment and in all new equipment. Packed in 6- and 50-pound containers.

Order these field-tested products from your wholesaler or write Refrigeration Division, VIRGINIA SMELTING Co., 254 Jefferson St., West Norfolk, Virginia.



Other new "Virginia" Water Treatment Products include
Algae • Cides No. 1 and No. 2, and Ice Machine Cleaner.



Circle No. 31 on Reader Service Card

ESOTOG • KINETICCHEMICAL'S "FREDON" REFRIGERANTS • V. METH. I
CAN-O-GAS • PERMAGUM • PRESSTITE TAPE • BIKIWRAP
SUNISO REFRIGERATION OILS • WATER TREATMENT CHEMICALS

Available in Canada and many other countries

There is nothing like a

MAGNI-CHEK VALVE®

U.S. PAT. 2,754,871
Additional patents pending

The magnetic check valve with the exclusive

T-S Connection

(Thread-Solder)



Only the Magni-Chek valve offers you these two very important features . . .

First of all a check valve with no back-pressure because there are no springs — only a small floating disc controlled by a lifetime alnico magnet. The flow need only overcome the negligible magnetic field to open the check, rather than the considerably higher back pressure of a spring loaded check valve. Magni-Chek valves are not affected by soldering heat.

Secondly you have . . .

41 DIFFERENT COMBINATIONS

with only three sizes due to the T-S* connection.

Why burden your stock-room and your service man with dozens of sizes. Reduce inventory, costs, bulk and weight. With just three sizes of the Magni-Chek with the exclusive T-S* Connection, you can make any one of 41 different installations . . . and everything needed is all in one — no additional tools required.

EXAMPLE: MTS-6 (1/2")	
<p>For 3/8" flare installations or 1/4" solder, allow insert to remain</p>	<p>For 5/16" solder installation reverse insert.</p>
<p>For 3/8" solder installation reverse insert.</p>	

Magni-Chek can be installed in any position without affecting performance!

Send for Illustrated Brochure

1020 EAST 15th STREET



HIALEAH, FLORIDA

Circle No. 5 on Reader Service Card



Air Conditioning Lessons Continue in Great Demand

EDITOR:

Would you please advise if you have reprints available of the following two residential air conditioning articles from your May 1956 issue: "Lesson No. 1—What's In It For You", and "Lesson No. 2—How To Build a Profitable Merchandising Program". Both of these articles were written by R. C. Hughes.

If reprints of these articles are not available, can copies of the May issue be obtained?

J. M. TOWNSEND
Zone Manager
Servel, Inc.
Atlanta, Ga.

EDITOR:

I wonder if you would be so kind as to send me about four sets of tear sheets of the articles by R. C. Hughes that were published in COMMERCIAL REFRIGERATION & AIR CONDITIONING in May 1956. Thanks a million.

F. B. KOSS
Manager, News Bureau
Worthington Corp.
Harrison, N. J.

No reprints of these articles are available, but copies of the May issue still may be obtained at a cost of 50 cents each, or 35 cents each in lots of 10 or more.

Heat Pump Issue Proves a Sell-Out

EDITOR:

Please send me a copy of your January, 1956 COMMERCIAL REFRIGERATION & AIR CONDITIONING magazine.

J. M. FOX
President and Gen. Mgr.
Quickfrez, Inc.
Fond du Lac, Wis.

Due to a demand which exceeded our greatest expectations, we are completely sold out of copies of our January issue, which

featured a very detailed analysis of the market for and merchandising potentials of the heat pump.

We still do have on hand, however, a few reprints of this special heat pump editorial material that appeared in the January issue. These are available upon request.

* * *

Seeks Source of Supply

EDITOR:

We are rebuilding sealed hermetic units in our spare time. We have a major problem—terminal leaks. We would like to know where we can purchase the fiber rings and rubber seals for Tecumseh and Philco compressors as original equipment.

J. J. BERAN and JAMES T. BROWN
Ferguson's Refrigeration & Furniture Co.
Pine Bluff, Ark.

We suggest any of the following firms as a source of supply for the hermetic components you seek: Airserco, Inc., Pittsburgh, Pa.; Hermetic Seal Products Co., Newark, N. J.; Sealed Unit Parts Co., New York, N. Y.; Wagner Tool & Supply Corp., Hialeah, Fla.

* * *

Room Cooler Articles Arouse Reader Interest

EDITOR:

Can you tell me whether or not reprints are available of the articles on page 88 ("Central Cooling with Window Units") and page 90 ("Room Coolers . . . They Can Make Sense for Hotel Use") of your August issue? Some of our people would like to send them abroad for the information of our representatives.

JOHN A. LABEREE
Information Service
E. I. du Pont de Nemours & Co.
Wilmington, Del.

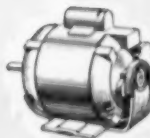
Reprints of both these articles can be prepared upon order.

JANITROL DISTRIBUTOR

Main Line Supply Co., Inc., Dayton, Ohio, has been appointed distributor of unit heater equipment for Janitrol Heating and Air Conditioning Div., Surface Combustion Corp.

Right

FROM THE START!



AEROVOX MOTOR-START Capacitors

Sound profits and stay put jobs are the big reasons why most repair shops and servicemen specify Aerovox capacitors. You'll be right from the start when you install an Aerovox Motor-Start Capacitor.

Aerovox, Pioneer and leader in the field of capacitors for AC applica-

tions provides a complete line of replacement capacitors for the air-conditioning, refrigeration and motor repair trade. Your local Aerovox distributor carries a complete stock at all times of exact duplicate replacements as well as universal replacement types.

FREE FOR THE ASKING . . . from your local Aerovox distributor only, a big 36-page AC Capacitor Catalog with complete sections on air-conditioning capacitor replacements, mounting hardware, engineering information and a big stock listing of AC capacitors for every application. See your Aerovox distributor for your copy today.



AEROVOX CORPORATION

NEW BEDFORD, MASS.

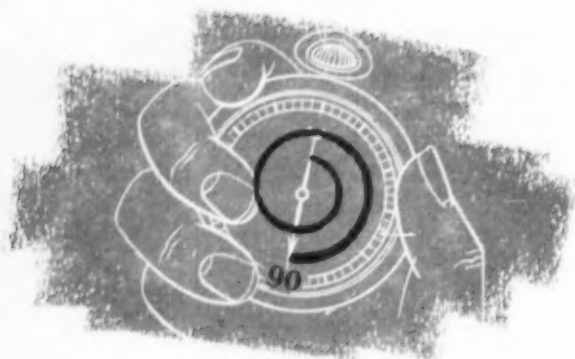
DISTRIBUTOR DIVISION

In Canada: AEROVOX CANADA LTD., Hamilton, Ont.

PENN'S "90-SECOND DECISION" PROTECTS YOUR COMPRESSORS AGAINST COSTLY DAMAGE



Penn Series 275 oil protection control operates on the difference between the oil pressure line and the crankcase pressure. Trip-free time delay switch is completely compensated to assure uniform timing under all ambient conditions.



Series 275 Oil Protection Control Shuts Compressor Off If Oil Pressure Doesn't Build Up Within A Safe Period

Guarding your refrigeration compressor against damage if oil pressure fails is the job that the Penn Series 275 oil protection control does so well. A sudden oil pressure drop may be a momentary fluctuation—or it may be a serious threat to seals and bearings. There's a critical period . . . say 90 seconds . . . in which pressure must build up to a safe level or it is dangerous to let the compressor continue running.

Here's the way Penn does the job. If oil pressure does not build up when the compressor is turned on, or it dips too low during the normal operating cycle, Penn 275 closely watches pressure readings. In a precise time period—those critical 90 seconds again—pressure must regain a safe level or Penn will automatically shut the compressor off. Then, the trouble can be corrected before damage occurs.

Learn more about this low-cost guard for your refrigeration compressors and other pressure lubricated equipment. Penn will protect you against severe losses in time and money. Get all the details from your compressor manufacturer or wholesaler.

PENN CONTROLS, INC. Goshen, Indiana

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

Circle No. 34 on Reader Service Card

THE NEW RESEARCH laboratories of National Carbon Co., which went into full swing in mid-September in Parma, Ohio, has sufficient equipment to operate about 1,000 tons of refrigeration. Major equipment consists of two natural-gas-fired boilers, with liquid "Pyrofax" standby, and two 400-ton refrigeration units. There are half a dozen additional units in various other areas of the laboratories. In the 158 test cells, no provision for recirculation is made, enabling the use of toxic chemicals when individual tests require, air being exhausted through a hood rather than through a ceiling fixture. A separate system maintains a constant 50% humidity for electrical brush testing, and still other special controlled temperature setups serve other testing areas.

TO HELP GUIDE THE PUBLIC in the selection of adequate air conditioning equipment, and to help clarify the confusion resulting from frequent misuse of the term, the American Society of Heating & Air Conditioning Engineers has prepared and adopted this new definition: "Air conditioning is the process of treating air so as to control its temperature, humidity, cleanliness, and distribution to meet the requirements of the conditioned space."

A THREE-POINT PROGRAM aimed at combatting the growing evil of price cutting in the room air conditioning industry has been suggested by E. A. Tracey, general manager of Mitchell Mfg. Co. Each link in the chain of distribution, Tracey avers, should back its faith in the industry's future by taking the following steps to ensure a reasonable profit on every unit sold: (1) Manufacturers should make early offerings that they can live with; (2) Distributors should establish prices, stick to them, and depend on creative selling to move units to dealers; (3) Dealers should subscribe to pre-season merchandising programs and use these to move goods, rather than depending on price cuttings.

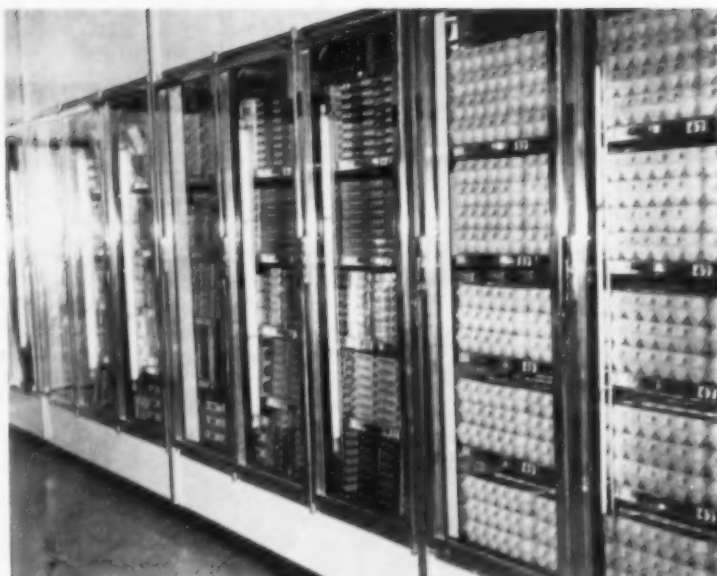
TWO INDUSTRY TRADE associations—the Air Conditioning and Refrigeration Institute and the National Warm Air Heating and Air Conditioning Association—have joined hands in an effort to establish an industry-accepted procedure for testing and rating central air conditioning units. A special committee, consisting of three representatives from each association, has been organized. Richard S. Dill, of the National Bureau of Standards, is committee chairman. Committee members are K. T. Davis, Carrier; R. A. Gonzalez, Airtemp; Graydon Peoples, Lennox; J. A. Gilbreath, Westinghouse; A. F. Ward, Worthington; and J. O. Yund, Servel.

COLD STORAGE INCREASES TOLERANCE of dormant strawberry plants to pest-controlling heat treatment, U. S. Dept. of Agriculture research shows. Practically all plants stored for two weeks at 32 F. survived two-minute immersion in water heated to 127 F. This heat treatment is used to free the plants of parasitic nematodes and the cyclamen mite. In contrast, only 40% of the plants survived the heat treatment when not previously subjected to cold storage.

THE REAL ESTATE MAN, like the retail merchant, is constantly seeking new merchandising tools to enable him to snare leases from his competitors, and air conditioning in one form or another is being increasingly adopted by builders and realtors as one means of meeting the pressure of stiffening competition. These were the opinions expressed by Irving Bottner, vice president of Lewyt Air Conditioner Corp., at a recent merchandising clinic staged for builders architects, and dealers in New York City. Several builders in the metropolitan area, he pointed out, are using built-in air conditioning successfully as a sales tool in both apartment houses and single dwellings.

PROBLEM NO. 1:

Mass display was needed to spur impulse buying of dairy products. These full-view glass doors, plus brilliant illumination of the five self-serve shelves turned the trick.



LICKING TWO PROBLEMS

LICKING two major problems in the dairy products department of a local supermarket with one custom-built installation is typical of the results achieved by Gordon Lozier Co., veteran refrigeration contracting firm in Omaha, Nebr., through its long established program of thoroughly analyzing every aspect of each job before proposing any specific type of equipment.

Lozier, convinced like many another contractor that "one good job sells another", has become a stickler for making exhaustive first-hand surveys of each potential installation before presenting an actual proposal to the prospect. As a result of this thorough pre-planning, he learns just what each prospect's problems are and determines how they can best be solved. Then, still before taking a single actual step toward making the sale, he sets up a definite list of standards which the proposed installation must meet.

The combination reach-in and walk-in dairy case that Lozier designed and installed for the Hinky Dinky Super Market at 72nd and Dodge St. in Omaha passed the contractor's own critical tests with flying colors and impressed the market operator, Nathan F. Chase, so favorably with its performance that he undertook to write the Lozier organization a letter of commendation outlining all that the installation had accomplished

in improving the market's merchandising operations.

In the dairy department of this 30,000-sq.ft. supermarket, the management had experimented with a variety of self-service refrigerated display equipment, including both open and lid-type cases as well as standard four-door reach-in units. All of these were found to have some disadvantages, and none, even in combination, had produced the results in terms of sales volume and operating convenience that were desired.

Custom-Built Fixture Seen as Answer

There were two primary obstacles to be hurdled in selling this market a new dairy refrigeration installation. The first was the desire of the management for adequate mass display which would exercise the same sales appeal with dairy items that it continually did with other less perishable products throughout the store.

The second barrier was the insistence of the store's operators on elimination of the serious traffic jam of shoppers which repeatedly clogged the aisle in front of the dairy cases during all peak shopping periods. This was caused largely by the necessity of having clerks front-load these self-service fixtures from cartons



PROBLEM NO. 2:

Clogging of traffic aisle during peak shopping periods as a result of front loading of dairy displays had hurt business. This walk-in space behind the display shelves cured this evil.

with one well-planned installation

and stock carts as supplies of various products became depleted.

In analyzing this situation, Lozier determined that to provide a truly satisfactory installation for this department it would be necessary to build-in an unusually large fixture which would not only satisfy the demand for mass display but which also would make possible a much larger inventory of displayed dairy products, thus drastically reducing the frequency of restocking required. Provision for rear loading of this fixture likewise was considered essential, as this would completely eliminate the necessity for blocking the heavily trafficked aisle during restocking operations.

Third Problem Was Proper Product Rotation

Such a fixture, Lozier was convinced, also would solve a third problem that was subordinate to the other two but nonetheless important in the eyes of the market management. This was the improper rotation of dairy products frequently caused by the front loading of the cases and often resulting in spoilage of merchandise not sold because it was continually pushed to the back of the display when fresh stock was added.

All of these difficulties were adequately resolved by

the huge 1800-cu.ft. refrigerator sold and installed by the Lozier organization to combine display and storage functions in the market's dairy department.

In the first place, mass display of dairy products is afforded by the 12 full-view glass doors, each 6' high, which form the front of the massive reach-in unit. Immediately behind these doors, are five tiers of polished stainless steel shelves, each 30" deep, which run the full 25' width of the fixture. Brilliant fluorescent lighting located behind each door mullion brightly illuminates the entire display area so that every package of dairy products, regardless of size, is bound to catch the customer's eye and stimulate increased impulse buying.

The display shelves actually occupy less than one-third of the total space in the refrigerated room. Balance of the space behind the shelves is devoted to bulk storage of dairy goods. Access to this area is provided by a walk-in door at one end. This arrangement makes it a simple matter to load the display shelves from the rear as required, completely eliminating the blocking of aisle traffic at any time. This rear loading also ensures that the first items put on display will be the first ones sold.

Continued on page 66

Circulating liquid ammonia system, coupled with clever "channeling" of sub-zero air in a relatively small room, makes possible . . .

Freezing 20 Tons of Turkeys Per Day

CONVERTING an old locker storage building into a complete frozen food processing plant equipped for production line handling of turkeys from live bird to packaged product might not seem like too tough a job at first glance.

When, however, the job involves turning the former meat curing room, with capacity of somewhat less than 4800 cu. ft., into a -40 F freezer capable of

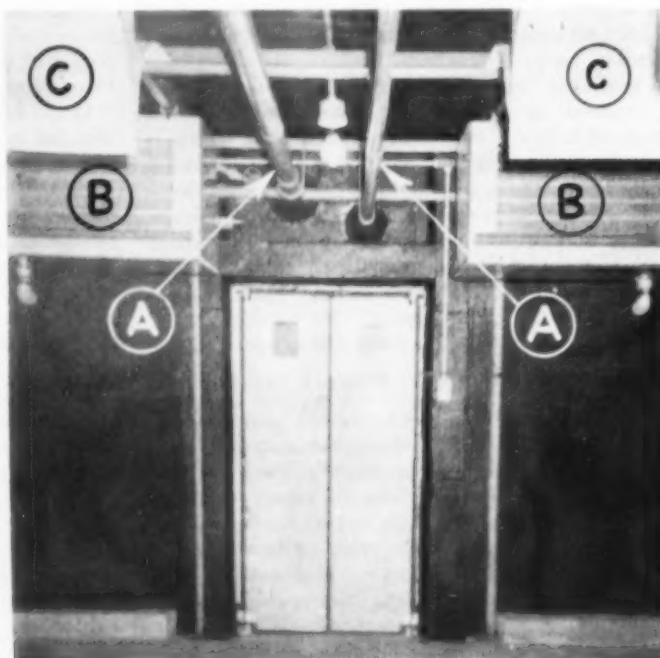
holding 40,000 pounds of birds—well, that's something else again. But Industrial Refrigeration Co. of Atlanta, Ga., confident it could meet the requirements, took the job, and succeeded in doing what some others had described as impossible.

Actually there were five prospective bidders on this job at the outset. Only two of the five, however, went so far as to submit

formal bids. One good look at the specifications for the job convinced the other three that they could not possibly get enough evaporator surface into the freezer to hold the necessary temperature of -40 F and still have enough space left in which to freeze the required 40,000 pounds of net product at one time.

How this critical space problem was solved provides the highlight

THE ABC's of this -40 F freezer installation are shown in the accompanying photo. Liquid ammonia is pumped through the ammonia mains (A) and the water defrost blower coils (B). Sub-zero air from these coils is directed downward by deflectors (C) toward the conveyor that brings the packaged product into the freezer room.



of an interesting story as P. T. McDonell, president of Industrial Refrigeration, discusses the problems his firm had to surmount in adapting this old locker plant to its new use.

Located up in Raeford, N. C., the locker plant had gone out of business and was put up for sale. In this same area, a group of turkey raisers had been looking for a closer and more convenient processing point for their birds. The abandoned locker plant seemed to them like a "natural", so they determined to organize a co-operative and buy it.

Costs Change Plans

Inexperienced as they were in refrigeration matters, however, they far underestimated the cost of converting this plant to their special use. When they started getting actual prices on revamping the plant and adding the new equipment that would be necessary for processing, freezing, and storing the desired quantity of birds per day, the co-op felt that it would be unable to raise the required amount of money.

Subsequently, two individual members of the group offered a plan whereby they would buy out the stock of the other co-op members and pay them for this stock over a period of years, partly in cash and partly in processing services. On this basis the two members agreed to go ahead with the conversion of the plant.

Existing Equipment Used

The existing equipment was left in service to operate on the present zero F storage room and on the new ice storage room which previously had been used as a chill and aging room.

The meat curing room, with inside dimensions of only 27'5" in length, 17'6" in width, and 9'7" in height, was equipped with added insulation and revamped into a -40 F freezer with a capacity for 40,000 pounds of turkeys. A new zero F storage space, measuring

Continued on page 67



TEST TOWER for COOLING TOWERS

ANY cooling system—like any chain—is no better than its weakest link. It is for this reason that the manufacturer of cooling towers, for instance, must be as exacting in his developmental and production procedures as the manufacturer of any other type of refrigeration or air conditioning equipment.

Scientific testing in the development of this product is of extreme importance, not only to determine the relative merits of various materials and types of construction but also to make possible more accurate recommendations to the user concerning tower capacity and performance.

An excellent example of the type of facilities utilized for this purpose is the test cell operated by Dover Mfg. Co. at its plant near Independence, Mo. The tower shown in the center of the photo above holds segments of redwood decking during tests. The small building at the left houses equipment used to create controlled atmospheric conditions for the testing of this decking in the tower. Piled on the ground at right are sections of experimental decking.

All this elaborate equipment is needed in order to accurately check the many variables that enter into the efficiency of the type and arrangement of deck filling, which in turn determines the rate at which water will be cooled in the tower. This test cell is equipped to control, among other factors, the force with which water passes

Continued on page 67

CONTROL center for the cooling tower test cell is this panelboard. As test data is indicated and recorded by the series of instruments, the project engineer makes notes on various phases of the tower's performance.





MEAT DEPARTMENT in the new Eavey supermarket in Fort Wayne has nine fresh meat cases with "calf-hide" plastic finish; eight refrigerated meat conveyor sections (shown back of meat

cases) for pre-packaging; two multiple shelf cases for processed meats; and six coral-finished island cases for smoked meats display.

Super Cooling for a Super Market

4700 square feet of refrigerated storage space, 552 lineal feet of refrigerated display — that's enough to make this store a prime example of modern market trends

ANYBODY who tells you that the current trend in supermarkets is toward the relatively small "vending machine" type of operation just hasn't seen the huge food emporium recently opened by Henry J. Eavey in Fort Wayne, Ind.

Referred to as the "world's largest supermarket", Eavey's king-size super is really a shopping center under one roof. It has total area of 80,761 sq. ft. with 50,250 sq. ft. devoted to the selling area.

The estimated 45,000 persons who shopped the store on opening day saw many innovations seldom if ever seen in a supermarket.

They saw a giant coffee roaster in the center of the store with a capacity of 500 lbs. an hour; an "ask it" system with six stations where customers can get store or price information; a mezzanine running the full length of the store; a carillon which plays hourly time and weather signals; a flower shop; a candy shop, pharmacy, beauty-aid department, jewelry shop, lunch counter, post office, liquor store, live pet department; and a parking lot to accommodate 1,000 cars.

They also saw plenty of refrigeration equipment. The giant market has 56 McCray refrigerated self-service display cases, totaling 552 lineal feet.

Built into the building are three low temperature and 12 normal temperature coolers totaling 4,700 refrigerated sq. ft., which contribute adequate storage for the perishable departments. These coolers are all

refrigerated by McCray-supplied coils and condensing units. The total condensing unit capacity for refrigeration is 187 hp.

The meat department consists of nine fresh meat cases (93 ft.) with a plastic finish resembling calf hide; eight refrigerated meat conveyor sections (88 ft.) for pre-packaging meat that are a new design engineered by McCray especially for this installation; two multiple shelf cases (12 ft.) for processed meats; and six island cases (27 ft. finished in coral) located at the ends of gondolas for the display of smoked meats.

There are four coolers for the receiving, holding, ageing and sharp freezing of fresh meats, and one for smoked meats.

The fish department has one iced service case (11 ft.) for fresh fish, two low temperature cases (22 ft. finished in blue) for frozen fish, and one fresh fish cooler.

In the frozen food department there are 12 low temperature cases (132 ft. finished in blue) for frozen foods. These cases are placed back to back in an island location. There is one large cooler for frozen food storage.

The produce department has six cases (66 ft. finished in green) for refrigerated fresh produce, with a refrigerated pass-through rack from the produce packaging room to the back of the display cases. There are separate coolers for wet produce, dry produce and banana storage.

The dairy department consists of three dairy cases (27 ft. finished in yellow) that have multiple shelves. Across the aisle is a dairy cooler with long, hinged glass self-service doors facing the display cases.

The delicatessen department has four cases (44 ft. finished in white) for the display of salads and other prepared delicatessen foods.

In the ice cream department there are three low temperature cases (30 ft. finished in pink) for the display of ice cream which is manufactured in an ice cream processing room separated from the display by a wall of sliding glass doors. An ice cream hardening room is part of this installation. The ice cream machine turns out about 2 gals. a minute. Liquid ice

Continued on page 49



DELICATESSEN cases at right have molded glass hoods to protect products. Frozen foods cases are in center, bakery section at rear.



PRODUCE department has pass-through behind. Ice cream cases are shown along back wall; sliding glass doors give access to processing room.



DAIRY cooler has hinged glass doors for easier self-service shopping. Next to it are a pair of water coolers, one for adults, the other for kiddies.



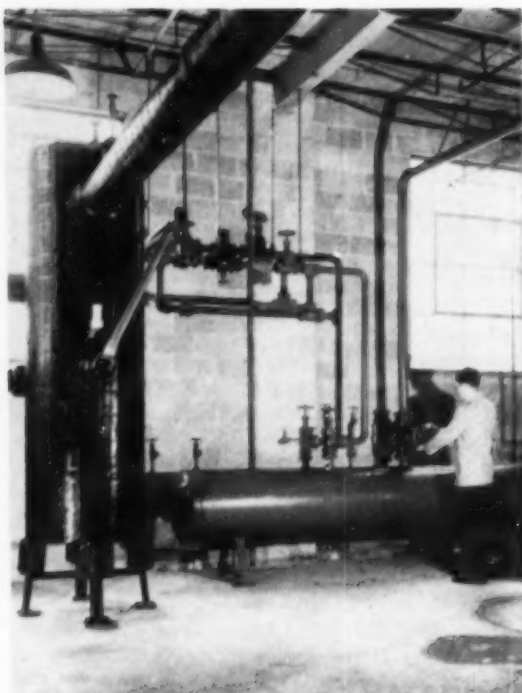
OVER-ALL view of the supermarket showing gondola arrangement. Meat section is at center rear, produce section at right rear.



LUNCHEON meat cases are finished in coral. Behind them is the meat holding cooler. Special window allows shoppers to pre-view the cuts they'll buy.

PASSING the liquid ammonia through a long coil in this 8'-high accumulator compensates for the normal 10% loss in efficiency.

PRECOOLING PROVIDES PEAK EFFICIENCY



PRECOOLING of the refrigerant is successfully employed to maintain peak efficiency in the direct expansion ammonia system which nightly cools the 40 refrigerated delivery trucks operated by Koontz Creamery, Inc., Baltimore, Maryland.

When liquid ammonia is expanded into a cooling coil there is normally a loss of about 10% in efficiency because the ammonia

must first cool itself. To overcome this handicap, the liquid ammonia used in the installation at the Koontz plant is pre-cooled by feeding it through a long coil in the accumulator, where the cold suction gas is brought back on its way to the compressor.

Actually the Koontz Creamery operates a fleet of 150 milk delivery trucks in addition to the 40 refrigerated vehicles used for sup-

plying wholesale milk and dairy products to stores and institutions in its trading area. The refrigeration system which cools these 40 trucks each night is located in the dairy's well equipped service garage adjoining the truck parking lot.

The refrigerated trucks have insulated bodies and are equipped with hold-over plates. They are cooled each night by direct ex-



AMMONIA MAINS FORM A "FENCE" around the enclosed yard area where the refrigerated creamery trucks are parked

overnight. Flexible hoses attached to permanent fittings on these mains make it possible to recharge hold-over plates in the trucks.

pansion ammonia fed through detachable hose lines.

The main ammonia liquid and suction lines lead from the refrigerating plant in the garage building to the truck parking area, where they extend around three sides of the enclosed truck yard. Both of these lines are insulated and protected from the weather.

Refrigerant Feed Regulated

As soon as the trucks return from their daily routes, they are hooked up to the refrigerant lines by means of short lengths of flexible rubber hose permanently attached to fittings spaced at regular intervals along the ammonia mains. The refrigerant feed to each truck is regulated by a thermal expansion valve, equipped with strainer and bulb, which controls the temperature within the limits desired.

At Koontz Creamery it is customary to chill the hold-over plates in the truck bodies down to a temperature of 18 F during the summer months.

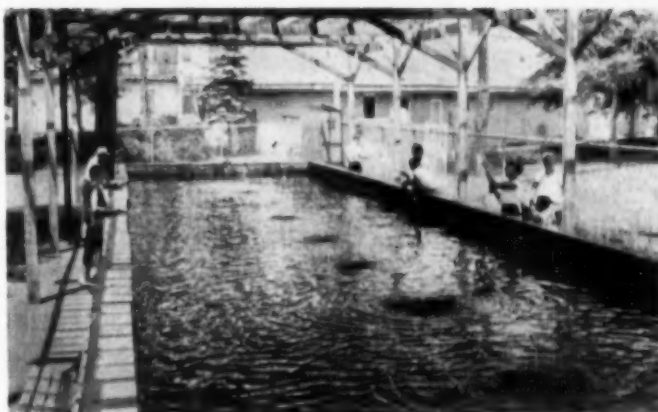
Safety Features Provided

During most of the year, the refrigeration plant in the creamery garage is powered by an 8 x 3" Frick compressor operated at 400 rpm by a 75-hp motor. This machine is equipped with automatic capacity controls so as to balance the load, and also has an oil pressure safety switch. High-pressure and low-pressure cutouts are provided for further safety.

In winter months, when not so much cooling is required, a smaller 5 x 5" ammonia compressor has been found to carry the load.

The condenser employed with this system is of the evaporative type and is galvanized throughout. It is mounted on the roof of the garage building, directly over the area in which the refrigerating equipment is located.

The accumulator in which the liquid ammonia is precooled measures 2' in diameter and 8' in height. It is, of course, carefully insulated to ensure maximum operating efficiency.



COOL WATER FOR TROUT FISHING is provided by a mechanical refrigeration system installed at this New Jersey amusement park concession.

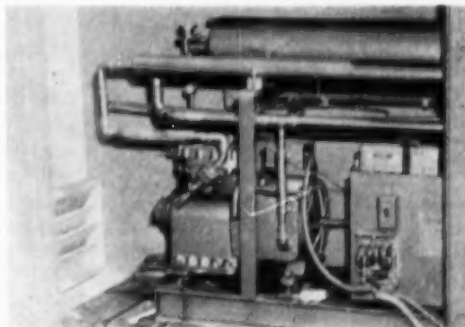
Cool Pool for Trout Fishing

AN amusement park concession offering men, women, and children an opportunity to try their hand at real trout fishing is made possible at Palisades, N. J., by a mechanical refrigeration system that keeps the constantly recirculating water in the man-made trout pond at a cool 54 F.

This shaded green pool at Palisades Amusement Park, just across the Hudson River from upper New York City, measures 100' long, 30' wide, and 32" deep, and is filled with 30,000 gallons of water. This pool is kept continually stocked with 900 trout, including Rainbows, Brooks, and Brownies ranging up to 27" in length and 4½ pounds in weight.

Here every prospective Isaac Walton can test his skill at fly fishing simply by paying a moderate fee for each 10 minutes of fishing time. Each angler is allowed to catch and take home two trout for each 10-minute period—and many do. Even a food freezer is available in which lucky fishermen can store their catches until they are ready to leave the park.

Because trout will thrive only in relatively cool water, the management of the concession sought some method of holding down the temperature of the recirculating water to the desired degree. The answer to this problem was found in a 7½-hp packaged water chiller and water tower installed by Electric Products, Inc., of Jersey City, the York representative in the northern New Jersey area.



CONSTANT temperature of 54 F is maintained in the recirculating water of the pool by this 7½-hp water chiller.

COMMERCIAL REFRIGERATOR SALES NEWS

Panel Discussions on Distributor Problems Spark Program for NCRSA 'Frisco Meeting

Three well-staffed panel discussions dealing with some of the most important problems facing commercial refrigeration distributors today will be one of the outstanding features of the 10th annual convention of the National Commercial Refrigerator Sales Association to be held December 3 and 4 at Hotel Mark Hopkins, San Francisco, Calif.

Suggestions on the handling of various phases of distributor operations will be offered at the convention's opening session by a 4-man panel consisting solely of executives of commercial refrigerator manufacturers. This discussion will be keyed to the phrase "If I Were a Distributor . . ." and will feature the following topics and speakers:

"... I Would Offer Store Planning and Engineering Services to the Following Extent:"—H. N. Corbin, general sales manager, C. V. Hill & Co., Inc.

"... I Would Have the Following Sales Pricing Standards:"—J. W. Krall, president, McCray Refrigerator Co., Inc.

"... I Would Organize My Service Department as Follows:"—J. A. Brinkoeter, 1st vice president, Friedrich Refrigerators, Inc.

"... I Would Approach Voluntary Chains and Supermarket Operations as Follows:"—Ray L. Greene, sales manager, Tyler Refrigeration Corp.

At the morning session on the second day, another panel will discuss four questions aimed at helping distributors "To Protect Your Profit . . ." The men who will provide the answers, and the subjects they will handle, are:

"... What Are the Best Ways of Financing?"—Fred E. Jacob,

Jacob Market Equipment, Los Angeles.

"... What Constitutes a Good Credit Risk?"—Robert L. Allen, general credit manager, D. Ghiradelli Co., San Francisco.

"... What Length of Terms Should Be Extended?"—R. Y. Mann, sales manager, C.I.T. Corp., San Francisco.

"... Should You Sell Equipment on a Lease Basis?"—D. P. Boothe,

Jr., president, Boothe Leasing Corp., San Francisco.

At the same session, R. N. Mattingly, secretary-treasurer of Hussmann Refrigerator Co., Ltd., Brantford, Canada, will address the convention on "Know Your Costs".

The third panel, with distributors participating yet to be announced, is scheduled for the afternoon session of the convention's opening day. Topic to be debated by panel members is "Does a Complete Line of Food Store Equipment Enhance a Distributor's Service and Profit?"

Convention chairman Ray Winther, of R. H. Winther Co., San Francisco, will present to this same session an address entitled "Is Your House in Order?"

Another feature of the educational program will be a film presentation showing new offices, show-

Continued on page 48

Distributors Show Drop In Net Profit

AVERAGE net profit of 29 commercial refrigeration distributors cooperating in a confidential analysis of overhead expense figures prepared for its members by the National Commercial Refrigerator Sales Association showed a decided drop in 1955 as compared with 1954, both before and after taxes.

Expressed in terms of percentage of total net sales, average net profit before state and federal income taxes was down to 2.80% in 1955, from the 4.08% recorded the previous year. Average net profit after taxes was only .99%, in comparison with 3.20% in 1954.

Average net worth of 23 distributors replying to this inquiry was \$118,618, with current assets exceeding liabilities by an average of \$100,435. Some 55% of the respondents were located in cities with population over 50,000, the balance in smaller communities and rural areas.

Distributors included in the survey reported an average of 5 salesmen employed, plus 2 owners or officers also engaged in selling, and an average total of 18 other em-

ployees, including owners or officers not engaged in selling.

In the detailed breakdown of the overhead expense analysis, the 29 distributors reporting showed that cost of goods sold averaged 79.76% last year, a slight increase over the 79.22 average reported in 1954. Gross margin on all sales in 1955 was 29.78%, compared with 31.42% in 1954. Comparative averages of other figures reported follow:

Total sales expense averaged 7.65%, against 7.58% the previous year. Delivery, installation, and service expense averaged 11.05%, down somewhat from 12.28% in 1954. Average total administrative expense, on the other hand, rose to 6.21% from 5.63% the year before.

Total occupancy expense remained steady at 2.24%, while miscellaneous expenses averaged 1.43%, compared with 1.54% in 1954.

Taxes, not including federal and state income taxes, rose to .74% from .50% the previous year. Income taxes in 1955 also increased to 1.07% from .74%.



\$ELL

an ice making machine
with real **SALES IMPACT!**



Chip-Freeze

AUTOMATIC ICE FLAKER

A new 560 lb. daily capacity ice flaker that is fast becoming the number one salesman in restaurants, bars, hotels, soda fountains, groceries and all retail outlets that want and use ice making equipment. Here is the newest, the most scientifically designed unit on the market today. Easy to operate and trouble free, CHIP-FREEZE is priced below competition. Offer your customers the unit that is making sales history. Sell CHIP-FREEZE, the only ice flaker in its field that provides these outstanding sales features.

• **FOR ECONOMY** . . . Savings up to 95%. A full bushel of crystal clear ice flakes for as little as 2c or 6c per hundred lbs. (depending on local power and water rates). Pay only for the ice that you need. Low installation cost and easy maintenance makes CHIP-FREEZE the most economical unit on the market.

• **FOR CONVENIENCE** . . . New NO DEEP REACHING DESIGN places ice at waist level . . . right at your fingertips for instant serving. Easy to operate, this space saving unit automatically turns itself on and off and is ideal for any water system.

• **FOR SANITATION** . . . No possibility of accumulation of ice that leads to scum, dirt and decay. CHIP-FREEZE produces ice at the top of the unit and enables you to constantly draw clean fresh ice from the lower part of the upper section of the sanitary, stainless steel storage bin. Newly produced ice then falls into place . . . ready for serving.

• **FOR BEAUTY** . . . Beauty pays off in sales appeal. The attractive CHIP-FREEZE space saving cabinet is available in a wide choice of decorator colors to harmonize with any interior. Easy to clean hi-bake enamel finish retains its luster for the life of the machine.



Send for complete
information and prices!

**NO DEEP
REACHING!**
Sparkling
pure ice
is always
at your
WAIST LEVEL!

Gentlemen: CRAC
I am interested in knowing more about CHIP-FREEZE Automatic Ice Flaker.
Name _____
Firm _____
Address _____ Phone _____
City _____ Zone _____ State _____

COCORA PRODUCTS
Designed and manufactured by
COLD CORPORATION OF AMERICA
Manufacturers of Ice Making Equipment
1371-89 N. North Branch St. • Chicago 22, Ill. • Michigan 2-3016

rooms, and warehouses of association members who have recently built or remodeled their headquarters.

Annual dinner of the association will be held Monday evening, December 3, preceded by a reception sponsored by distributors in San Francisco and the Pacific Coast area.

McCALL LISTS FALL TRADE SHOW SCHEDULE

McCall Refrigeration Corp., has scheduled five trade shows this fall where it will hold demonstrations and exhibit its line of reach-in refrigerators and upright freezers.

Show dates are: American Dietetic Association annual convention, Milwaukee, Oct. 9-12; American School Food Service annual convention, Chicago, Oct. 21-26; Louisiana State Restaurant Show, New Orleans, Nov. 6-8; Virginia State Restaurant Association annual convention, Richmond, Va., Nov. 6-8; 41st National Exposition, New York City, Nov. 12-16.

DEALERS GET FULL KIT OF ICE MAKER SALES AIDS



EDUCATIONAL AND PROMOTIONAL kit designed for dealers and consumers by Cold Corp. of America not only gives the dealer all the necessary literature he will need for educating and selling "Chip-Freeze" ice flaking machines, but also covers questions which the consumer may have concerning his need for this equipment, its cost, and the advantages of having clean chipped ice available at a moment's notice. Included are salesman's "pitch" book of flip-card variety, envelope stuffers, window decal and franchise dealer certificate, official franchise forms, glossy photographs of product, swatchbook illustrating variety of decorator colors available, telephone solicitations, mat ads of various sizes, price list, specification sheet, lead-referral mailers, ad reprint, and numerous other sales and merchandising aids.

Schmidt

Builders of Tesco Equipment

New Middle Size Vegetable Case with LCS*

New Sure Seller for the Medium Size Store

Here's the case that's popular with the "in between" size store. Sell it for capacity—for quality—for profits!



- 24 sq. ft. of display
- 36 cu. ft. of storage
- in only 27 sq. ft. of floor space
- exclusive LCS to maintain high humidity
- economical operation
- * LARGEST COIL SURFACE

Write today for complete details on the Model OMS-108.

THE C. SCHMIDT CO.
1712 JOHN ST. CINCINNATI 14, OHIO



Circle No. 36 on Reader Service Card

OCTOBER, 1956 • COMMERCIAL REFRIGERATION

SUPER COOLING . . .

Continued from page 43

cream mix is delivered by tank truck, and pumped into refrigerated storage tanks.

The bakery, which is completely open to public view, has a dough retarder cooler and a freezer cooler for bakery products. Thermopane windows separate the bakery from the store proper. The bakery can make 936 loaves of bread an hour; the aroma of fresh baked goods is distributed through air conditioning ducts. The coffee-roasting machine, located in the center of the store and extending from floor to rafters, includes an aroma chamber that wafts the aroma of roasting coffee around a "Spice Island" section.

The new market is the third outlet of Henry J. Eavey, Inc., which has its headquarters in Richmond, Ind. Other Eavey stores are in Anderson and Middleton, Ind. The store will be open from 9 a.m. to 9 p.m. seven days a week.



WESTERN TOUCH was added to the recent one-day sales meeting staged by Janitrol for 150 Columbus area air conditioning and heating dealers. "Hi Pardner!" was the theme of the day, and the western touch included white Stetson hats, sheriff's badges, packages of Bull Durham, Western music during conference breaks, and a Barbecue lunch. Tips on how to "lasso" customers were provided by an old Western movie, synchronized with a specially prepared script recorded on tape.

ARW OFFICES MOVED

Headquarters offices of Air Conditioning & Refrigeration Wholesalers association have been moved to a new address at 1200 West Fifth Ave., Columbus, Ohio. New telephone number is Hudson 6-5757.

Added services to ARW mem-

bers and to the industry made necessary larger quarters with more suitable facilities, according to Starr Hull, executive secretary. Former location was at 2607 N. High St., Columbus.

**BUY FROM YOUR
REFRIGERATION WHOLESALER**

**Get out
of the
icebox
and make
extra profits!**



You can make more money in every food store you contact by selling Hirsh Showline shelving in addition to refrigeration equipment and service. Showline is a natural for extra profit sales in both new and established stores. It comes complete — there's nothing more to buy or paint — and can be installed quickly, without special tools. Whether it's installed by you or by your customers (it's that easy to put up) you'll make extra profits with a minimum of effort.

Don't freeze your sales and profits by confining yourself to refrigeration lines alone. Get your share of the money spent for equipping the rest of the store! Mail the coupon today for the full Showline profit story.



SHELVING FOR EVERY NEED

CR-10

S. A. HIRSH Manufacturing Co.
8031 CENTRAL PARK AVENUE—SKOKIE, ILLINOIS

Gentlemen: Please send me literature, prices, and jobber discount information on Hirsh Showline Shelving.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

CONTRACTORS

NEWS • ACTIVITIES • PLANS

Tentative Program Announced for RACCA Annual Meeting at Miami Beach Nov. 26-28

TENTATIVE program for the annual convention of Refrigeration and Air Conditioning Contractors Association, to be held Nov. 26-28 in the Balmoral Hotel, Miami Beach, Fla., has recently been released by national RACCA headquarters.

The host association, ACRA of Florida, is sponsoring exhibits of manufacturers' equipment in 24 booths in connection with the meeting, and designated hours each day will be left open so that contractors attending will have a chance to visit the displays and talk with exhibitor representatives.

Although the program proper will not open until Monday, Nov. 26, registration and committee meetings will start the preceding Saturday, Nov. 24, and directors will meet on Sunday, Nov. 25. Exhibits also will be open that day. As an inducement to visit exhibits, prize tickets will be given to the first 25 persons visiting each exhibit each day. Drawings for prizes will be held each day of the meeting.

General meeting will open at 10 a.m. on Nov. 26, with officer and committee reports. The annual RACCA luncheon will be held at noon. Presentation of RACCA awards will be made at the luncheon.

Following luncheon, members will hear an address by a representative of the United Association national office, and following this will be a forum on labor, with a moderator and panel consisting of three committee members from U.A. and three committee members from RACCA. A Mexican cocktail party and reception will

round out the formal program for the day.

General meeting on Tuesday, Nov. 27 will open with an address by RACCA president Dudley Cawthon. There will follow four "management" talks — on profit-sharing plans, bid depositories, maintenance and service agreements, and national hospitalization and insurance plan. Each of these talks will be brief, and opportunity will later be given for discussions on additional problems that attending contractors select.

A management forum, modeled along the same lines as the one on labor, will close the session. Afternoon will be open for visits to exhibits.

Closing session on Wednesday morning, Nov. 28, will include election of new RACCA directors, and election of officers by the directors. A guest speaker also is scheduled for this session, on the general topic of the importance of national surveys and how to apply national averages to an individual

business. Adjournment will follow brief talks by newly elected officers and directors.

Windup of the meeting will be a Hawaiian style "Luau Banquet" at 6 p.m., with final awards drawings.

HEADS EXAMINING BOARD

James A. Dean has been appointed executive secretary of the newly created North Carolina Board of Refrigeration Examiners. Appointed earlier were K. P. Hanson, chairman; C. V. Stevens, secretary; W. H. Jones, treasurer; and E. T. Chanlett, P. B. Mayo, and G. A. Brickle, additional board members.

MIAMI STRIKE RESULTS IN JOINT PROGRAM

A work stoppage of refrigeration and air conditioning mechanics on July 5 resulted from a stalemate in negotiations of U. A. Local No. 725 and ACRA of Miami, RACCA affiliate.

A call for assistance to the national joint committee resulted in national officers from RACCA and the U. A. meeting with the local negotiating committee. Mechanics returned to work on Tuesday morning, July 10, after two days and nights of negotiating. Conditions in the Miami agreement continued the meetings through the next two weeks, with a resulting cooperative training and public educational program being re-

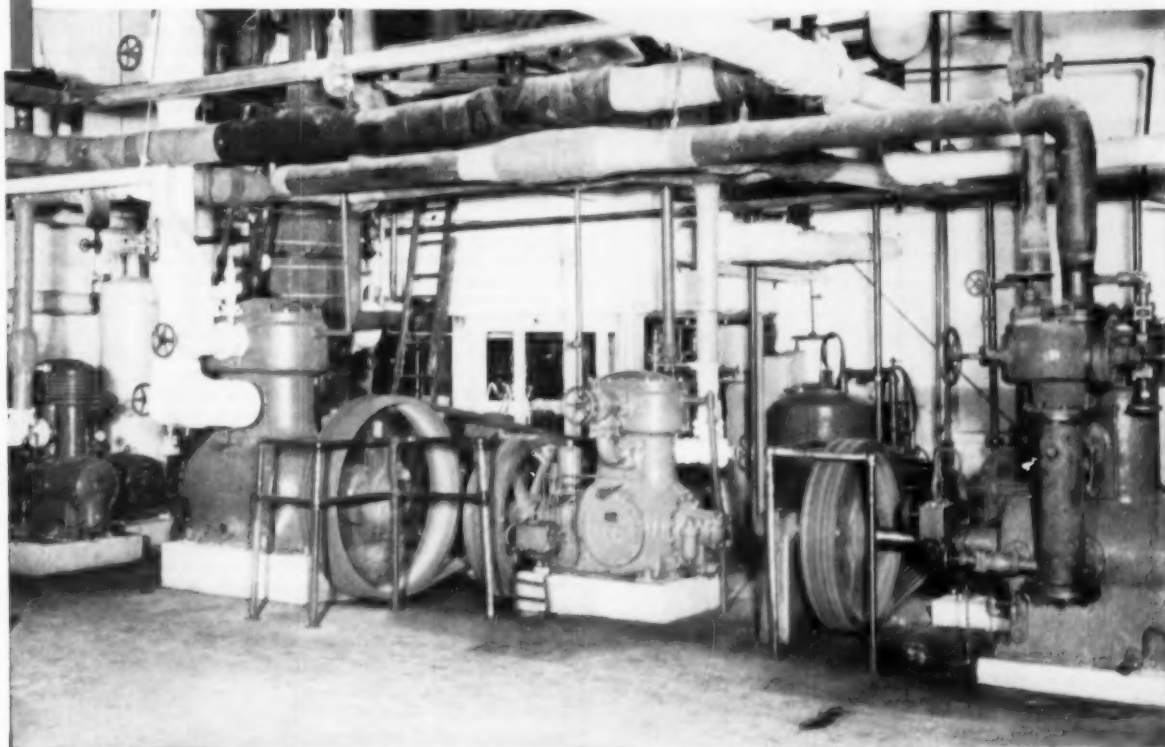
Continued on page 116

ACME CERTIFIES LIQUID CHILLER PERFORMANCE

CERTIFICATES of performance are now issued with all Acme Flow-Cold (3 thru 20 hp) and Flow-Therm (20 thru 150 hp) packaged liquid chillers. These signed certificates attest to the fact that each unit so certified has been given a complete factory testing under full load conditions, and that it has performed satisfactorily at its nominal rating.



"Efficient Refrigeration, low maintenance expense"



THIS western ice and storage company (name on request) has used *Texaco Capella Oil* for years and reports: "... performance has been consistently dependable. Systems stay clean, valves and other vital parts function smoothly. The overall results—efficient refrigeration, low maintenance expense."

Texaco Capella Oil (Waxfree) is specially refined for compressor service. It exceeds Freon floc test requirements and the specifications of all leading refrigeration manufacturers. *It will not wax out* in systems even at temperatures as low as minus 100° F. *Texaco Capella Oil (Waxfree)* resists oxidation and foaming, retains its stability under the

severest conditions. It is moisture-free and compatible with all refrigerants.

There is a complete line of *Texaco Capella Oils (Waxfree)* to meet every compressor requirement. Available in 55-gallon and 5-gallon drums, 1-gallon cans, and the more popular grades in 1-quart containers—all refinery-sealed to protect purity and quality.

Let a Texaco Lubrication Engineer help you get greater refrigerating efficiency. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, N. Y.



TEXACO Capella Oils (Waxfree)

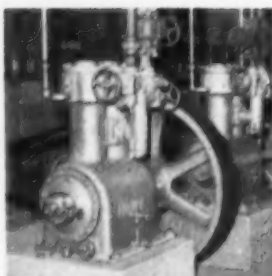
FOR ALL REFRIGERATING AND AIR CONDITIONING COMPRESSORS

Circle No. 38 on Reader Service Card

IN REFRIGERATION *it Pays to Know* HOWE

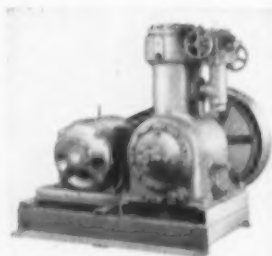
COOL IT

with one or more of Howe's complete line of modern space-saving automatic ammonia compressors. Sizes—2 to 150-ton capacity. Built for maximum service with minimum cost.



FREEZE IT

with Howe Booster Compressors. Food freezing techniques to meet today's rigid requirements. Can be engineered and built to your local plant conditions with equipment manufactured by Howe.



HOLD IT

A complete line of high efficiency unit coolers, polar circle coils, fin type coils—designed to handle any size of storage cooler or storage freezer. For preserving fresh and frozen foods.



WRITE FOR LITERATURE

CONTRACTOR-DISTRIBUTORS — Several exclusive territories still open — Your inquiry invited.

HOWE

ICE MACHINE CO.

Since 1912, manufacturers of ammonia compressors, condensers, coolers, fan coils, locker freezing units, air conditioning equipment.

2819C MONTROSE AVE. • CHICAGO 12, ILLINOIS

Circle No. 39 on Reader Service Card

USEFUL

BULLETINS • BOOKLETS • CATALOGS

CORROSION-RESISTANT POLYETHYLENE and polyvinyl chloride pipe, tubing, ducting, valves, and fittings for industrial applications make up the line described and illustrated in a 12-page catalog by American Agile Corp., Maple Heights, Ohio. All material is arranged in quick reference form with more than 24 photos and drawings supplementing the text.

Circle No. 103 on Reader Service Card

ELECTRICALLY-OPERATED SOLENOID VALVES for air, gas, steam, and liquid flow control are described in comprehensive Catalog No. 200 available from Atkomatic Valve Co. Listed are dimensions, specifications, pressures, and applications of two-way valves in bronze and stainless steel.

Circle No. 104 on Reader Service Card

NYLON FITTINGS which are impervious to most acids and alkalis and guaranteed not to crack or leak under normal conditions are described in 4-page Jaco Mfg. Co. bulletin, "The Zytel Miracle Fitting." Specifications and illustrations are included.

Circle No. 105 on Reader Service Card

MONEY-SAVING IDEAS are offered refrigeration contractors in "The Circulator," J. E. Watkins Co. circular which is published monthly. Publication explains how contractors are improving their installation and use of refrigeration systems; how they are cutting initial and maintenance costs; and how they are improving the efficiency of their plants.

Circle No. 106 on Reader Service Card

PORTABLE LEAK DETECTOR, model H-1, is featured in 8-page, 2-color Bulletin GEC-233F, published by General Electric Co. The booklet covers features, applications, specifications, and operation of the instrument used for locating leaks in closed systems.

Circle No. 107 on Reader Service Card

NEW PUMPING UNIT for wells as small as 4" in diameter is covered in four-page, Layne & Bowler Pump Co. bulletin. Detailed diagram, selection tables, and order procedure comprise insert which is designated Section 2.4 of the "Verti-Line" catalog.

Circle No. 108 on Reader Service Card

EASIER SELECTION METHODS are offered readers of 8-page, 3-color Catalog A-428 describing complete line of electric generating plants by D. W. Onan & Sons Inc. Each separate series of plants—1-cylinder air-cooled models; 2-cylinder air-cooled models; 4, 6, and 8-cylinder water-cooled models; and air-cooled Diesel models—is illustrated and listed in detail.

Circle No. 109 on Reader Service Card

HELPFUL HINTS on the bending, joining, and welding of seamless and welded stainless steel pipe and stainless steel welding fittings are offered in Bulletin TB-410, produced by Tubular Products Div., Babcock & Wilcox Co. Application data on the most widely used stainless steels also is supplied in this 8-page folder.

Circle No. 110 on Reader Service Card

HOW TO LOWER COSTS for storage is pointed out in Frick-Gallagher Mfg. Co., Catalog No. 706 which discusses "Klip-Bilt" boltless steel shelving. Illustrated 12-page booklet in color comprehensively discusses principles, showing various models of open, closed, and ledge-type shelving available. All component parts and accessories are viewed in detail.

Circle No. 111 on Reader Service Card

PROPER METHOD for installing seamless metal hose in vertical loops is illustrated and necessary length required to handle amount of movement desired is shown in table in Bulletin J-6 available from Johnson Metal Hose, Inc., Waterbury, Conn. Complete specifications also are included in two-color publication.

Circle No. 112 on Reader Service Card

COMPRESSOR SHUT-DOWN arrangement of the 3400 series time switches, designed especially for the refrigeration industry, is explained in Paragon Electric Co., 2-color catalog sheet. Applications and general specifications also are provided.

Circle No. 113 on Reader Service Card

ADHESIVE BONDING is the subject of illustrated, 8-page booklet released by Rubber & Asbestos Corp. Application techniques and precautions, advantages and limitations are explained in detail. Emphasis is placed on the epoxy-based adhesives which need neither heat cure nor pressure. Also supplied are helpful tables, charts, photos, and data.

Circle No. 114 on Reader Service Card

TWO TYPES OF UNPLASTICIZED polyvinyl chloride pipe and fittings are featured in bulletin available from Alloy Tube Div., Carpenter Steel Co. Specific advantages of normal impact grade and high impact grade types are given, with applications listed by industry and process. Full range of corrosion resistance also is defined.

Circle No. 115 on Reader Service Card

"OPPORTUNITIES UNLIMITED" is the title of booklet designed for the many industries using "Trufin" integrally finned tube available from Walverine Tube, Div. of Calumet & Hecla, Inc. Publication covers applications in processing, electrical, and water heater fields, as well as refrigeration, and allied industries.

Circle No. 116 on Reader Service Card

CONSTRUCTION DETAILS of complete line of direct draw taps featuring only one degree of temperature variance from bottom of cabinet to faucet tips, are listed and illustrated in cutaway drawings in catalog sheet prepared by Nor-Lake, Inc. Specifications for all models are included along with diagram of optional, self-contained compressor unit.

Circle No. 117 on Reader Service Card

"MIGHTY MITE" stud driver (Model 456) is the topic of 8-page folder (Form No. 56-310 S) in color available from Industrial Sales Div., Remington Arms Co., Inc. Utilization procedure is explained step-by-step. Accessories list is included along with illustrated dimensional series of all available studs.

Circle No. 118 on Reader Service Card

NEW 1956 EDITION of its booklet "Sodium Nitrite for Rust and Corrosion Prevention" has just been issued by Solvay Process Div. of Allied Chemical & Dye Corp. This comprehensive bulletin contains up-to-date data on uses of sodium nitrite for corrosion prevention. Sections of booklet cover use of sodium nitrite combined with other materials for cleaning and/or neutralizing operations. Booklet also contains extensive bibliography.

Circle No. 119 on Reader Service Card

(See page 88 for Air Conditioning Literature)



Newest Accepted Design in Refrigeration Duty Motors

• This trouble-free motor starts and runs refrigeration compressors under the most severe conditions. It has just three parts which wear because of motion or electrical contact — the bearings; contact points on the stationary part of the switch; and the centrifugal parts of the switch. Excellent design holds wear on these parts to a minimum. Servicing is practically eliminated. Motors are Underwriters' approved.

Write for Peerless Refrigeration Motor Bulletin. It shows recommended wire sizes, construction features and answers those questions asked most often by men who service and distribute refrigeration duty motors. It shows you how motor service and maintenance can be held to a minimum.

ELECTRIC MOTOR DIVISION
THE Peerless Electric COMPANY

FANS • BLOWERS • ELECTRIC MOTORS • ELECTRONIC EQUIPMENT
WARREN, OHIO

Circle No. 41 on Reader Service Card

NEW PRODUCTS

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your request will be forwarded directly to the companies concerned.

(For Air Conditioning Products turn to page 90)

Automatic Ice Maker

Product: "Ice Boy" automatic icemaker, (LC-80).

Manufacturer: Lipman Div. of Yates-American Machine Co., Beloit, Wis.



Features: Sufficient body of ice makes it last longer in beverages and around food displays. Capacity of 260 lbs. of ice production in 24-hour period is claimed by manufacturer. Insulated steel cabinet with gun-metal, mottletone finish is 36" high, 24" wide, and 25½" deep. Optional storage bin which fits beneath "chipper" stores 250 lbs. of ice.

Circle No. 137 on Reader Service Card

Jet Pumps

Product: 3, 4, and 5-stage deep and shallow well, multi-stage jet pumps.

Manufacturer: Peerless Pump Div., Food Machinery and Chemical Corp., Los Angeles, Calif.

Features: Designed to produce up to 3200 gph from deep wells and up to 2200 gph from shallow wells. 100% automatic pumping units may be installed over-well or offset in wells as small as 2" in diameter. Have sealed ball bearing motor, new-type, ceramic-plastic shaft seal, a heavily-constructed mounting bracket for accurate motor alignment, impellers and pump base, bronze-alloy

impellers, glass pressure gauge, new-type, rigid-pressure switch mounting, improved foot valve and strainer, and air-volume control. Piping arrangement permits piping to be connected to pump through bottom of pump case or through side of pump case. Finish is plastic green lacquer.

Circle No. 138 on Reader Service Card

Water Cooler

Product: Self-contained, stainless steel water cooler.

Manufacturer: Temprite Products Corp., Birmingham, Mich.



Features: Capacities range from 5 to 27 gph. Both air-cooled and water-cooled condensing units are available. Includes combination fingertip and toe water flow control; dual thermostats for highly accurate water temperature control; easy-to-remove side panels and top; hermetically-sealed compressor; silver soldered joints; and moisture and vermin-proof insulation.

Circle No. 139 on Reader Service Card

Frozen Food Case

Product: Self-contained ice cream and frozen food case.

Manufacturer: C. Schmidt Co., Cincinnati, Ohio.

Features: Merchandise can be displayed safely within 8" of the top



of this (8' 7" long, 40" wide, 42" high) case. Has helped merchants turn over their frozen food inventory more than 30 times a year, manufacturer claims.

Circle No. 140 on Reader Service Card

All-Metal Refrigerator

Product: Vimco stainless steel Model DTS-16F-16-S dual-temperature, self-contained refrigerator.



Manufacturer: Victory Metal Mfg. Corp., Plymouth Meeting, Mass.

Features: Has combination 16-cu. ft. normal temperature refrigerator and 16-cu.ft. freezer. Interchangeable interiors are adjustable on 1" centers to take any or any combination of pan slides, stationary or pull-out meat rails, stationary or pull-out shelves, and refrigerated drawers. Interior accessories can be changed in minutes with no tools needed. Complete with ¼-hp, hermetically-sealed unit for normal temperature and a ½-hp, hermetically-sealed unit with Kramer Thermobank automatic defrost for freezer. Width 50¼", dept 30½" (exclusive of hardware), and height 72¾".

Circle No. 141 on Reader Service Card

Frozen Food Case

Product: "Superline" Model No. SY11R self-service, frozen food refrigerator.

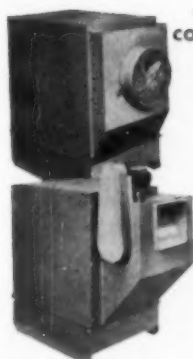
Manufacturer: Friedrich Refrigerators, Inc., San Antonio, Tex.

Features: Low height makes shopping easier and lessens re-stocking problems. Shelves may be adjust-

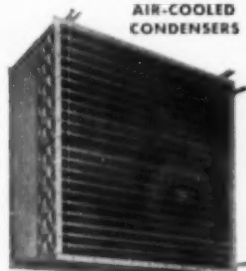
take a look at

LARKIN

for economy • efficiency • easy servicing



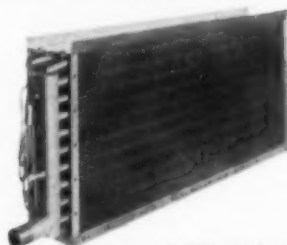
WATER-SAVER
COOLING TOWERS



ZEPHYRCON
AIR-COOLED
CONDENSERS

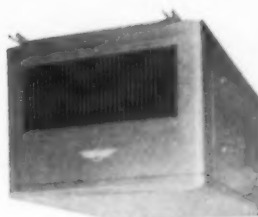


HEAT EXCHANGERS

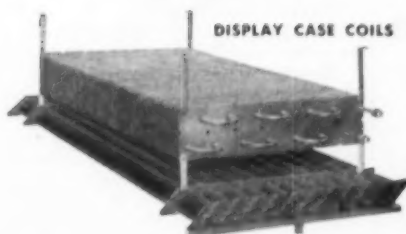


AIR CONDITIONING
COILS

DIRECT EXPANSION
WATER COOLERS



AIR CONDITIONING
UNITS

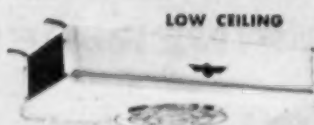


DISPLAY CASE COILS

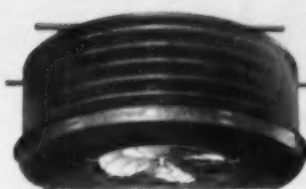
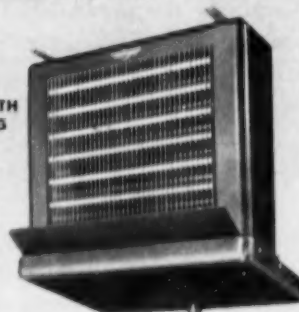


WALL

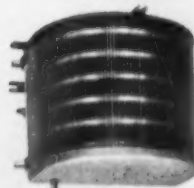
LOW TEMPERATURE WITH
HOT GAS DEFROSTING



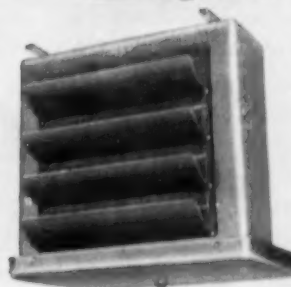
LOW CEILING



TURRET AND HALF TURRET



SANTAM



STANDARD

Manufacturers of the original Cross-Fin Coil • Humi-Temp Units • Evaporative Condensers • Cooling Towers • Air Cooled Condensers • Air Conditioning Coils and Units • Direct Expansion Water Coolers • Heat Exchangers • Disseminator Pans

LARKIN COILS INC.

519 Memorial Drive, S.E. • MURRAY 8-3171
P.O. Box 1699, ATLANTA 1, GEORGIA



ed to take care of slow periods when less merchandise is on hand. Sloped-in front permits shoppers to reach any part of display without losing their balance. Stainless steel combination hand rail and basket guard



rail on front affords protection against cart bumps. Has reverse cycle automatic defrost. Available

in 8 and 11' lengths with various 54½ and 70" shelf and mirror superstructures. Ends are removable for continuous line-ups.

Circle No. 142 on Reader Service Card

Separator-Mufflers

Product: Line of "OSM" oil separator-mufflers.

Manufacturer: Heat-X, Inc., Brewster, N. Y.

Features: Solved in one unit, manufacturer says, are two problems common to refrigeration systems: silencing of system noises and separation of all oil entrained with hot

gas from compressor. Equipped with mechanism which automatically returns to crankcase all oil that is separated. Manufacturer points out that ratings are based on tonnage rather than horsepower, thereby



permitting close matching of unit to requirements. No floats can hang open or stick closed. Positive action velocity pressure mechanism opens only when compressor is running and closes of its own weight when compressor stops.

Circle No. 143 on Reader Service Card

NOR-LAKE offers FINER REFRIGERATION

For Business and Home; here's how

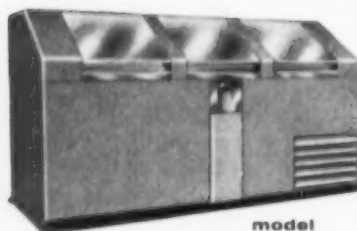
FREE Details on These Outstanding Models—Use Coupon Below



model
30W

Professional quality home freezers

Now, Nor-Lake's Deluxe Freezer offers the home all the sturdiness and professional dependability of a commercial freezer. 3½" Fiberglas insulation, Tri-Pli door sealers, non-rusting, non-odorous aluminum liners assure maximum food protection. Sharp, constant freezing guaranteed with individually coiled shelves. Triple hinges prevent cold-losing "door sag." Audio alarm signal warns of heat loss or power failure. 960 lb. capacity shown. Models to 560 lb.



model
SCP-6

Finest commercial coolers

This beautiful slant-top cooler assures complete and constant refrigeration. Blower constantly circulates frigid air around bottles. Heavy-duty copper coils used throughout. 3" Fiberglas insulation, galvanized interior and heavy gauge steel construction mean years of dependable, economic service. Greater convenience and storage capacity with disappearing doors and adjustable bins. Available in lengths 48" to 115".

All models available in stainless steel.

For better freezing, cooling or storing, look to the nation's northland and—



NOR-LAKE, Inc.

2nd & Elm

Hudson, Wis.

Phone:

Hudson 523

Dept. 200

Please rush FREE illustrated literature on:

Freezers ☐ Coolers ☐

Name _____

Address _____

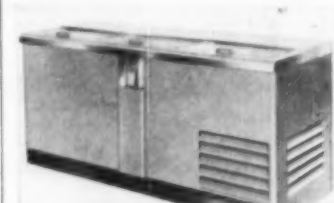
City _____

State _____

Circle No. 43 on Reader Service Card

Beverage Cooler

Product: "Lo Boy" beverage cooler for use where bottled liquids are dispensed.



Manufacturer: Nor-Lake Inc., Hudson, Wis.

Features: Pull-out compressor unit, using coiled copper tubing, may be released by loosening two screws to permit easy servicing from front without moving cabinet. Louvered grill replaces mesh formerly used. Designed without rear glass rail for placement under service counter when desired. Available in stainless steel or baked-on enamel finishes over cold-rolled steel to match other equipment. Corners are rounded for safety and easy cleaning. Top includes 12¼" work or storage space extending width of cabinet.

Circle No. 144 on Reader Service Card

Refrigerator Latch

Product: Safety latch for refrigerator and freezer cabinet doors.

Manufacturer: National Lock Co., Rockford, Ill.

Features: Designed to assure positive latching action. Released by push on inside of door or pull on outside of door. Used with inoperative-type door handle and roller-type strike, does not require handle actuating device. Door handle can be positioned anywhere on latching

Insulbond!

A new LAYKOLD adhesive for the refrigeration industry



AFTER MIXING, the Insulbond soon develops a buttery, easy-troweling consistency.



WHEN COATED, the block can be placed immediately.

A tough thing to picture, but easy to describe: that's "INSULBOND," our new adhesive for bonding impervious insulation blocks.

Quick-setting—without moisture dissipation required—INSULBOND holds the blocks firmly in place.

INSULBOND is easy to prepare on the job. All you do is mix cold, fluid, special Laykold® binder and Lumnite Cement. The resultant mix soon becomes buttery and is then ready for spreading. The blocks are then immediately set in place.

We first called this new product our "Damp wall Adhesive" because it would set up and hold insulation under damp conditions. A name that would better describe this adhesive's wider use would be "A New, Cold-Applied, Fast-Setting Cement For Two Moisture-Impervious Insulation Materials." But we had to shorten that, so we now say "INSULBOND; and we think you will, too, when you know what it can do for you.

Full technical data and specifications are available. Use the coupon, below, to order your copy.



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AMERICAN BITUMULS & ASPHALT COMPANY

Box 20, San Francisco, California

☐ Please send me specification #G-35 covering the use of INSULBOND.

Name

☐ Please send me information on all your insulation adhesives and coatings.

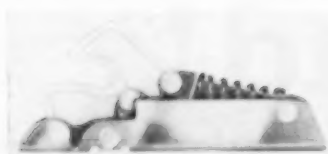
Company

☐ Please have your Field Engineer contact us.

Address

City and State

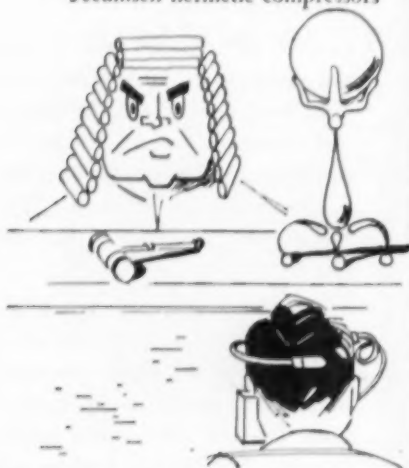
Circle No. 44 on Reader Service Card



side providing new freedom of handle styling and eliminating linkage problem. Door still can be closed without difficulty if mechanism bolt is tripped accidentally when door is open. Small and compact, can be mounted vertically or horizontally on right or left hand doors.

Circle No. 145 on Reader Service Card

number 6 in a series of ads to help you better understand the servicing of Tecumseh hermetic compressors



YOU decide whether I am to be a good compressor

The life of the compressor you are about to install is in your hands. It comes to you from your wholesaler, properly identified with a nameplate and engineered to do a particular job. When you have completely analyzed the job for which it is intended, and are sure you have the *right* compressor, take your time in applying it to the job. Make certain the compressor is just as clean and free of dirt and moisture after you have finished, as it was prior to installation. Elementary as this may seem, how well you do your job, decides how well the compressor performs.

When called upon to service a compressor in the field, investigate every possible cause for failure. The service man should be constantly aware of the many variables that have the same effect on the compressor's performance. Only after a thorough investigation is it possible to determine the cause of a faulty operation. To jump to a hasty conclusion, is to invite an incorrect analysis and costly service call-backs.

Do yourself and your customer a favor. Protect your Tecumseh service warranty by avoiding the major reasons for compressor failure. It may take a little longer, but remember, a happy customer is your best salesman.



TECUMSEH PRODUCTS
TECUMSEH, MICH.
MARION, OHIO
EXPORT DEPT.:

P. O. Box 2280, 24530 Michigan Ave., W. Dearborn, Mich.

World's Largest
Producer of
Compressors for the
Refrigeration Industry

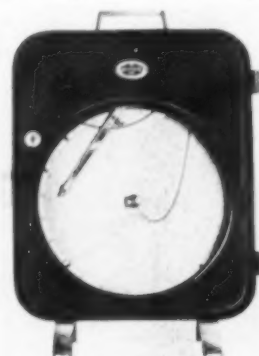
Portable Thermometer

Product: Portable recording thermometer for maintaining accurate temperature test records where ready reference for future use is required.

Manufacturer: Weksler Thermometer Corp., Freeport, L. I.

Features: Mercury or vapor actuated, is supplied with either 8, 10, or 12" chart, and is equipped with carrying handle and stand legs for easy carriage. Has brackets for coiling connection tubing at rear of case and locking device for holding bulb in place when not in use. Rust, dust, fume, and moisture-proof case in

black, wrinkle-finish, cast aluminum with self-contained bulb for air temperatures or available with 5' of interlocked spiral armor, and plain.



union, or separable socket connection bulb for use in air, steam, or liquids.

Circle No. 146 on Reader Service Card

HERMAN HERMETIC says

THE PRECAUTIONS
YOU TAKE KEEP ME
OUT OF TROUBLE



Steam Cleaner

Product: Portable steam cleaner Model No. 100-P with high limit pressure control.

Manufacturer: Halkirk Co., Manhattan Beach, Calif.



Features: Exposed adjusting screws permit operator to select maximum pressure for his best cleaning needs. Cleans and degreases in one operation without disassembly. Cleaning is dust-free without flooding. Electrically heated on 110 volts, 15 amps. Measures 14" square and weighs approximately 50 lbs.

Circle No. 147 on Reader Service Card

Package Water System

Product: Four models added to line of "Dutchman" and "Dutch-Pak" packaged water systems.

Manufacturer: Lancaster Pump & Mfg. Co., Lancaster, Pa.

Features: Both shallow and deep-well, 1/3 and 1/2-hp models now are available with 15 and 30-gallon horizontal tanks. Either vertical or

INTRODUCING THE MUELLER BRASS CO.

LINEMASTER

THE NEW
LIGHT HEAVYWEIGHT
CHAMPION OF
THE DIAPHRAGM
VALVE FIELD!

MUELLER BRASS CO.

cavalcade of champions



SUPER-SEALING

A phosphor bronze diaphragm between two stainless steel diaphragms gives the LINEMASTER an unbeatable combination for super-sealing and long life. Diaphragms pressure wear tested for thousands of openings and closings without failure.

SUPER-SEATING

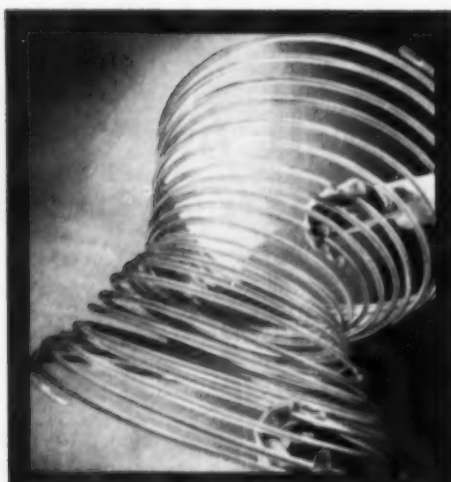
In the LINEMASTER, tough, resilient molded nylon seat disc insures positive shutoff even if foreign material is lodged against the seating surface. Mueller Brass Co. pioneered and proved the superiority of nylon for "super-seating".

The simple design and sound engineering of this compact forged brass LINEMASTER make it a real heavyweight among "shorty" diaphragm valves. These new LINEMASTERS are solid brass construction throughout . . . even to the comfortable, square design handwheel. Flow passageway is streamlined to eliminate turbulence and provide full-flow. Exclusive triple diaphragms of phosphor bronze and stainless steel furnish seep proof sealing and excellent wear resistant properties. A tough, resilient nylon stem disc operating against a precision finished seat assures positive shutoff. Five straight-thru and angle type LINEMASTERS with flare, solder, and M.P.T. end connections are available. Never before has such a compact valve embodied so many good sound engineering features and been built to such high standards of quality. The LINEMASTER is really a light, heavyweight champion. See the popularly priced LINEMASTERS at your wholesaler's . . . and judge for yourself.

MUELLER BRASS CO. PORT HURON 10, MICHIGAN

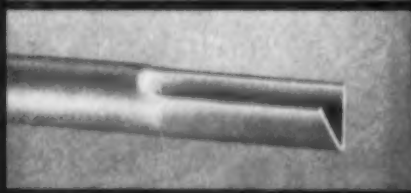
MUELLER
BRASS
CO.
STREAMLINE
PRODUCTS

Before you buy refrigeration tube



The patented UNITED WIRE DULAYER coiling method assures arrival of this quality refrigeration tube in perfect condition every time. Unfailingly SOFT and UNIFORM temper is your assurance that each coil will unwind, straighten, flare and bend perfectly . . . EVERY TIME.

Check these United Features!



New UDD® V-type mechanical seals maintain moisture-free, clean, mirror-like inside surface . . . have same diameter as tube for easy passage through openings.

Every coil, every length of UDD® copper tubing is individually checked for leaks, temper, cleanliness, size - gauge - length and inside perfection.

Add prompt shipment (orders received before noon shipped that day from main plant or warehouses in key cities) to these features and it's easy to see why so many specify UDD® the BUY-word for quality tubing.

*United Deoxidized dehydrated



UNITED WIRE
AND SUPPLY CORP.

Providence 7, Rhode Island



Visit Booth 554
Metal Show
Cleveland
Oct. 8-12

COPPER, BRASS
AND ALUMINUM
WIRE AND TUBING
AND BRAZING ALLOYS

Circle No. 46 on Reader Service Card

horizontal completely packaged water systems. A choice of models



to meet any installation problem. Models incorporate four-volute, self-priming design.

Circle No. 148 on Reader Service Card

Compact Soda Fountain

Product: Model No. 350 ("Bob-tail") full-storage, compact soda fountain.

Manufacturer: Dunhill Soda Fountain Corp., Brooklyn, N. Y.



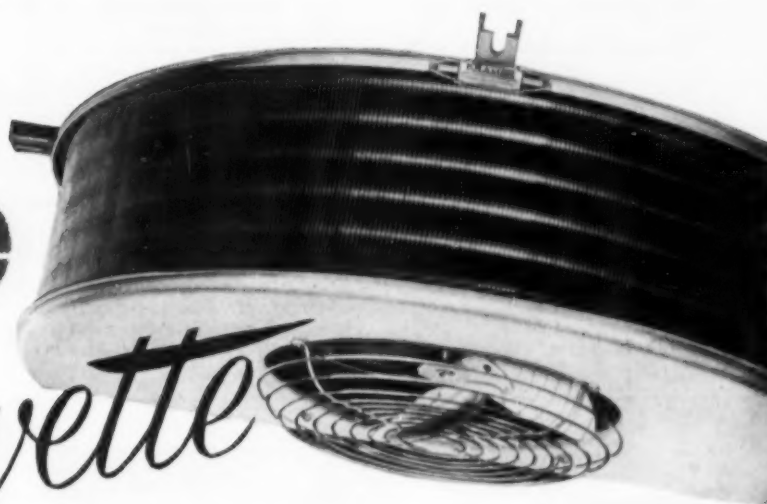
Features: Measures 3' long, 31" deep, and 32 1/4" working height. Includes four syrup pumps and three crushed fruit pumps. Bottle storage compartment is of 24-gauge stainless steel side walls and 20-gauge stainless steel bottom. All joints are electric-welded and soldered. Bottom of lining is die-formed for large radius corners and is indented and pitched to 1" brass drain for quick draining. Outside drain connection is 1" brass male pipe thread. Has Heat-X 100% dry instantaneous cooler. Separate water, soda, and refrigerant coils are cast in aluminum block for protection against freeze-up damage. Capacity is 15 gph. Temperature is controlled independently.

Circle No. 149 on Reader Service Card

Suspended Cooler

Product: M-320 ceiling suspended "Humi-Temp" unit cooler.

Large *Curvette*



by **KRAMER**



HINGED PAN

quick and easy access

Praised for years by installation and service men.

Built-in Heat Exchanger

NO RUSTING — polished aluminum casing

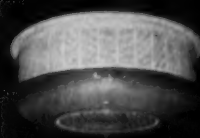
WRITE NOW
FOR
BULLETIN C-192-7



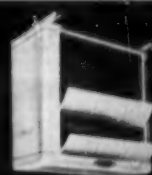
SMALL CURVETTE
800 to 5,600 BTU's Per Hour



COOLMASTER
2,500 to 60,000 BTU's Per Hour



RADIAL
2,500 to 23,000 BTU's Per Hour

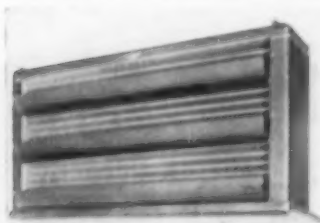


KAY-TEE
2,500 to 12,000 BTU's Per Hour

KRAMER TRENTON CO. • Trenton 5, N.J.

Manufacturer: Larkin Coils, Atlanta, Ga.

Features: Available for high



temperature use, capacity is 32,000 Btu/h with 10-degree TD. Case and

drain pan are made of rust-proof, heavy gauge aluminum and painted blue. Coil surface consists of aluminum fins and staggered copper tubing, assuring maximum heat transfer. Mounting hangers are slotted to facilitate installation. Motors are provided with thermal overload protectors.

Circle No. 150 on Reader Service Card

Reach-In Refrigerator

Product: Two additional stainless steel reach-in refrigerators.

Manufacturer: Frigidaire Div.,

General Motors Corp., Dayton, Ohio.

Features: Storage capacities are 27 and 44 cu. ft. Line including five other models now ranges in size from



17 to 62 cu. ft. Five of the units are available in white exterior enamel, four of which have forced air systems and one features ice cube maker and frozen food storage compartment. Stainless steel models also feature "Flowing-Cold" cooling systems.

Circle No. 151 on Reader Service Card

Can you do this
with the
condenser cleaner
you're using now?



anco condenser cleaner

is completely safe to use. It won't burn workmen's skin or attack metal surfaces, either in dry form or solution. If it's accidentally spilled in the service truck or on tools, no harm's done. Yet, ANCO CONDENSER CLEANER does a fast effective job of removing the heaviest scale. Dissolved in the sump while the system is in operation, it removes scale and rust within 2 to 15 hours, depending on the thickness of the scale. Head pressure drops to normal and operating efficiency is restored. Why take chances with unsafe cleaners? Do a good job safely with ANCO CONDENSER CLEANER.

Free WATER TREATMENT MANUAL

A complete booklet on the control of scale, rust and algae in refrigeration and air conditioning systems. No service department should be without a copy. It's yours for the asking.

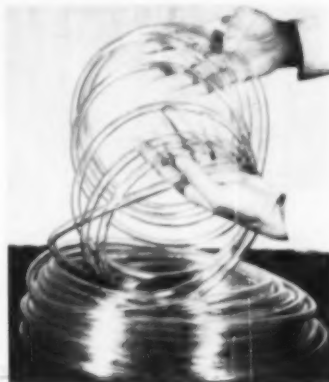


Anderson Chemical Company, Inc.

Box 1424 • MACON, GEORGIA

Vinyl Tubing

Product: Maximum clarity vinyl tubing suitable for transmission of beverages for human consumption and similar applications.



Manufacturer: American Agile Corp., Bedford, Ohio.

Features: Will handle wide variety of liquids, including chemicals and reagents, and has excellent flexibility and non-toxicity. Available in both transparent vinyl and translucent polyethylene forms, and may be steam-sterilized. Tubing comes in sizes from 1/8 ID x 1/4 OD to 1 ID x 1 1/4 OD, with 11 standard sizes offered.

Circle No. 152 on Reader Service Card

Non-Caustic Detergent

Product: Non-caustic detergent (Nocaust-NC 200) for air condition-

Circle No. 48 on Reader Service Card

Why you can be sure of
LASTING, LEAKPROOF
PERFORMANCE
with American
Vibration Eliminators



First...look at the core. It's seamless, corrugated tin bronze tubing, quality-controlled through every manufacturing stage. This copper-tin alloy is specially engineered to stand up under vibration while carrying gases and liquids under pressure. Because it's *seamless*, there are no joints or laps where leaks can start.

Next...for extra strength and durability, it's covered with bronze wire braid securely brazed in place. Sizes through 2" have a single wire braid covering, larger sizes a double braid covering for added strength.

Then...before it's shipped, the final assembly is pressure-tested, oven-dried, and sealed in a plastic envelope to keep out dirt and moisture.

American Vibration Eliminators are sold by leading distributors everywhere. For descriptive folder of standard sizes with installation suggestions, write to *The American Brass Company, American Metal Hose Division, Waterbury 20, Connecticut*. In Canada: *The Canadian Fairbanks-Morse Company, Ltd.*

50195 Rev.

Circle No. 49 on Reader Service Card



for American Vibration Eliminators

see your

ANACONDA[®]

distributor

ing and refrigeration applications.
Manufacturer: John B. Moore Corp., Nutley, N. J.

Features: Manufacturer claims it eliminates hazards encountered in metal degreasing and cleaning of soft metals. Is dustless, free-flowing powder, and 100% active. Highly alkaline, but contains no free caustic or inert material. Claimed to be non-injurious to metals. Needs only to be mixed with water of varying degrees to complete its cleaning functions. Available in 400 lb. lever-lock fiber drums.

Circle No. 153 on Reader Service Card

"Liquid Eye" Indicator

Product: Self-contained "Liquid Eye" positive-sealing indicator (250 series).



Manufacturer: Allin Mfg. Co., Chicago, Ill.

Features: Has one-piece extension-gasket, forming positive seal that is always in place. Smaller and

more compact. Separate gaskets are not needed. Available in six sizes: 3/8, 1/2, 5/8, 7/8, 1 1/8, and 1-3/8". Specially designed to save even more installation time for the serviceman. Circle No. 154 on Reader Service Card

Condensation Unit

Product: Single and duplex "Hotshot" condensation return pumping units.

Manufacturer: Deming Co., Salem, Ohio.

Features: Units are rated up to 10,000 sq. ft. of direct radiation with pressures up to 20 lbs. High-pressure units are available up to 50 lbs. Shallow-type, cast iron receivers in 6 or 20-gal. sizes permit low connection



to return line. No foundation bolts are required. Can be set on floor or in shallow pit. Centrifugal pump has fully-enclosed, stainless steel shaft, and compression-type coupling. Will not vapor lock. Capacitor motor has built-in thermatron and overload protection with automatic reset. Automatic controls have double pole switch mounted on receiver and operated by float. Duplex units are equipped with alternator float switch which operates pumps in sequence or together under peak loads.

Circle No. 155 on Reader Service Card

KING SIZE PROFITS WITH SODAMASTER

"I get a real charge out of this."

the aristocrat of beverage dispensers

Aristocrat of beverage dispensing systems is Sodamaster, and Sodamaster dealers are royally rewarded in greater customer acceptance . . . peak sales.

Customer interest is created by hard-hitting promotions. Sales are closed with presentation of documented statistics proving that (1) a Sodamaster unit pays for itself in amazingly short order; and (2) Sodamaster is the most efficient answer to operating problems facing any customer who serves mixed or soft drinks. Another sales feature is that Sodamaster is easy to install . . . easy to operate . . . easy to maintain.

Sodamasters can be found everywhere . . . from neighborhood bars to plush ocean liners. Thousands of units are in use . . . still many more thousands of prospects are waiting in every community of the nation.

THESE SIX SODAMASTER FEATURES COMMAND INTEREST . . . CLOSE SALES

The identical beverages previously obtained from bottles—with carbonation equal or higher.

As much as 65% savings on bottled flavors, 96% savings on club soda.

A variety of flavors, instantaneously, at the finger tips.

Unmatched service speed, avoiding dissatisfaction and "walkouts" at rush periods.

Elimination of costly, troublesome, time-consuming bottle handling.

Uniform coldness and perfect proportions of beverages, automatically.

MAIL THIS COUPON TODAY

For literature outlining the opportunity now open to make bigger profits selling Carbonic Dispenser Sodamaster, Mix-Monster, Faucet and Supercharger Carbonator Equipment.

Name _____

Address _____

City _____ State _____



West Coast Plant: 16028 S. Marquardt Ave., P.O. Box 142, Norwalk, Calif.

In Canada: General Equipment Corp., Ltd., Toronto, Ont.

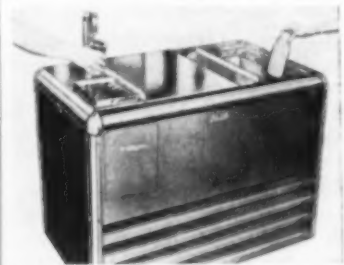
Circle No. 50 on Reader Service Card

Beverage Cooler

Product: Model C4-15 beverage cooler.

Manufacturer: Bevco Co., St. Louis, Mo.

Features: Handles 570 half pints of milk or 12 1/2 cases of 12-oz.



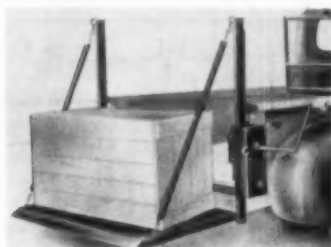
bottles corded. Requires only 27 1/2 x 47 1/2" of floor space and is 39 1/2" high. Storage compartment is 19 1/2"

deep. Has baked enamel exterior, stainless steel sliding lids, and adjustable temperature control. Accessories available include stainless interiors and exteriors, cold water equipment, fountainettes, casters, locking bars, plastic transparent lids, formica service top sections, and adjustable wire separators for bin-type storage.

Circle No. 156 on Reader Service Card

Elevating Tailgate

Product: "Jiffy-Lift" elevating tailgate for pick up and express truck bodies.



Manufacturer: Mid West Body & Mfg. Co., Paris, Ill.

Features: Packaged kit can be installed in less than two hours. Complete unit weighs only 175 lbs., which keeps vehicle within its

present license fee. All-steel, ramp-type, has capacity of 600 lbs. Heavy or bulky articles can be loaded or unloaded by one driver. Has simple lifting mechanism, having ball bearings throughout for easiest operation. Requires no maintenance other than occasional lubrication.

Circle No. 157 on Reader Service Card

Frozen Food Case

Product: "Profit King" frozen food display case.

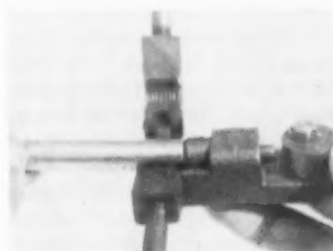
Manufacturer: Warren Refrigerators, Atlanta, Ga.

Features: Self-contained, automatically defrosted freezer with capacity of 15.2 cu.ft. in only 22.4 sq. ft. of floor space. Measures 58" high with canopy. Abundantly insulated with extra-fine fibrous glass, doubly sealed. 2" price-tag rail at back of display opening made of aluminum baked with deluxe white enamel. Automatic disposal of drainage eliminates need for plumbing. Bumper rail of stainless steel. Flush ends permit placing several cases end to end for mass-merchandising effect.

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produces perfect flare in end of copper tubing in 10 seconds.

Manufacturer: William L. Engesser & Co., El Monte, Calif.



Features: Simple operation accomplished in three steps: 1) Open and place copper tubing against flaring pin (tube adjusts automatically to proper height above holding jaws). 2) Close holding jaws and hold handles firmly together. 3) Close compression cam handle which moves flaring pin against tubing. When tubing is taken out, it's ready for use. Flaring pin always is in perfect alignment with tube to be flared. All working, wearing parts are heat-treated.

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LICKING TWO PROBLEMS...

Continued from page 39

With interior dimensions of 25' in width, 9' in depth, and 8' in height, this room actually is large enough to accommodate an average week's stock of dairy items at one time, without crowding. This makes it possible for the market to combine both storage and display of dairy products in a single location, and to eliminate the need for separate basement storage facilities previously used.

Only one month after this custom-built dairy cooler had been installed, store manager Chase wrote the previously mentioned letter to the Lozier organization in which he summed up all of the advantages of this fixture which already had been demonstrated during its brief period of use. Some excerpts from this letter follow:

"This cooler assures product freshness by making it possible for us to keep all dairy items con-

stantly under refrigeration after they arrive at the store. Pricing of all items is handled within the cooler itself before the items are moved to the display shelves.

"We have found that with rear loading automatic rotation of merchandise is readily achieved. As shoppers remove the older items from the front of the display shelves, the remaining items are pushed forward, with no "leap frogging", as fresh merchandise is added at the rear of the shelves.

Sales Stimulus Shown

"Since the walk-in door of this cooler is well out of the shopper traffic pattern in the store, and since the display shelves are now re-stocked from within the cooler itself, we have completely eliminated the need for any obstructions in the aisle at any time during restocking operations."

As an example of how effectively the new display facilities have stimulated sales in this department, Chase reports that the 12-door fixture recently resulted in the sale of 20 cases of a popular

caramel nut roll in only six days time. Normally, he points out, at least a month of intensive promotion would have been required to move this quantity of such a specialty item with the market's old display facilities.

AIR FILTER INSTITUTE BACKS FILTRATION STUDY

The Air Filter Institute has authorized the underwriting of the joint research project on air filtration by the University of Minnesota and the American Society of Heating and Air-Conditioning Engineers, Inc. for 1957.

The Institute also has decided to establish a permanent office at 300 Independence Ave., S. E., Washington 3, D. C. Function of this office will be to carry on general business and also to aid in the clarification of government specifications on air filtration.

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Just a few strokes of the stik does the trick. There's no mess... no waste. Powerful fluxing action goes right through oily and rusty surfaces. No tedious cleaning or wire-brushing... assures a perfect union of solder and metal. Safe to use... will not pit or corrode metal. For all Soft Solders.

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Small store operators are cramped for space and need this refrigerated space-saving case to eliminate spoilage of perishables. GOES THROUGH 36" DOORWAY! Has all the features grocers want — Large storage and display areas. Removable storage bins. Gleaming white life-time porcelain on exterior front ends and wearing surfaces. Low operating cost, etc. Comes in 6, 8, 10 and 12 foot lengths. Self-contained models also available.

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FREEZING TURKEYS . . .

Continued from page 41

approximately 42 x 34 x 17', was added.

In order to accommodate such a heavy product load in such a small room as the -40 F freezer, McDonell decided to utilize a full-flooded liquid ammonia circulating system in conjunction with ceiling type water defrost blower coils. There were located on each of the long side walls of the room.

Air Deflectors Used

Cold air blowing from these coils is directed toward curved air deflectors suspended from the ceiling in the center of the room. These deflectors direct the air downward to the conveyor that brings the packaged product into the freezing room.

The air handling units in the freezer are fed by a liquid ammonia pump from a 20" vertical surge drum located in the machinery room. The large zero F storage room also is equipped with ceiling type air handling units which are piped up to the same liquid circulating pump handling the freezer.

The air handling units in the freezer are defrosted only once a week. It has been found that at -40 F room temperature most of the moisture in the air crystallizes before entering the blower coils.

Freezing Load Doubled

As the crates full of turkeys to be frozen are taken off the conveyor in the freezer room they are stacked up, starting 8" from each wall, with 2 x 2" strips between crates to allow for adequate air circulation and consequently more rapid freezing. Loaded in this manner, the freezer will hold 40,000 pounds of birds.

It takes approximately two days to freeze the heavy tom turkeys to zero F at the thickest points, so at the outset the operators of the plant put into the freezer only 20,000 pounds of fresh turkeys each day, adding this new load to the 20,000 pounds of birds put into the room the previous day. Thus, each 20,000-pound load was al-

lowed to remain in the -40 F room for two full days so that freezing of the product could be completed. As each new 20,000-pound load was put into the freezer, another thoroughly frozen 20,000-pound load was moved from the -40 F room into the zero F storage room.

It soon became apparent to the plant's management, however, that production capacity would have to be substantially increased. In order to accomplish this, the zero storage room was pulled down to -15 F, so that now 40,000 pounds of fresh turkeys are put into the -40 F room each day, while the previous day's load of 40,000



pounds is moved into the -15 F room until it is frozen out and ready to ship.

To handle the combined load of the freezer and the holding room, a two-stage refrigeration system is located in the machinery room.

The first stage of this system consists of one 15-hp and one 30-hp booster compressors. These pull off the 20" surge drum, which is equipped with a float control, and then discharge into a 16" x 8' horizontal intercooler. The second stage is comprised of a 7 x 7" two-cylinder compressor driven by a 50-hp motor. Condensers are of the evaporative type.

The 13 tons per day of flaked ice required to pack the chilling vats in which the freshly processed birds are chilled out before freezing is provided by an automatic ice maker of adequate capacity. This machine is mounted in a

specially built housing on the roof of the building. The ice produced by this machine falls into a storage bin located adjacent to the processing room.

This ice making equipment is powered by a 5½ x 5½ two-cylinder compressor with a 25-hp motor. This compressor also is equipped with an evaporative condenser.

All condensers in the installation are piped up together and drain into one common receiver.

So successful has this installation proved for the turkey processors that Industrial Refrigeration Co. has been called upon to expand the plant's ice-making capacity from 13 to 22 tons per day, and to provide another -40 F freezer room that will double the plant's daily output of frozen turkeys.

TEST TOWER . . .

Continued from page 41

through the tower, wet bulb temperature of the air, temperature of the water, amount of deck surface exposed to the water, and distance between deck surfaces.

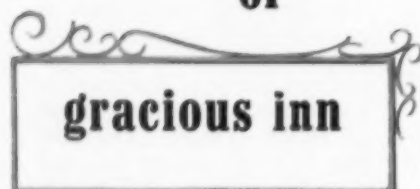
In fact, the design engineer can literally "dial" any set of operating conditions he desires, thereby assuring complete accuracy of the test. Not only can air inlet conditions be controlled, but atmospheric conditions can be changed at will. Relative humidity, for instance, is automatically controlled by injecting live steam into the air stream. Velocity of air entering the tower is regulated by use of different sized orifice plates inserted into the large tube leading from the blower to the tower.

During the test, automatic instruments record the performance of the tower. Both wet and dry bulb temperatures are recorded for incoming and outgoing air, as well as the temperature of inlet and outlet water. Pressure drops are recorded at several check points. All of this information is permanently set down on charts for later study by the design engineer.

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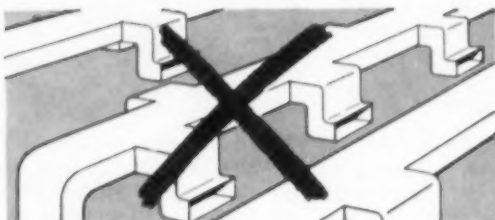
CONTEMPORARY motif of office is enhanced by the trim, modern styling of Modine AIRditioner. Quiet, individually-controlled air conditioning provides instant comfort . . . increases employee efficiency.



COLONIAL atmosphere with a modern touch — when Modine AIRditioners provide *fresh, clean air* . . . in every climate, in every season. They solve all air conditioning and heating problems — with performance, styling, economy.

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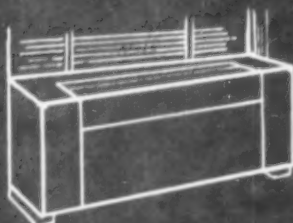
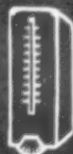
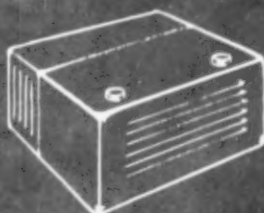
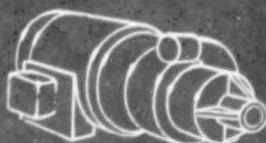
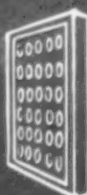
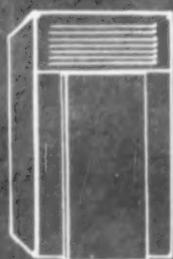
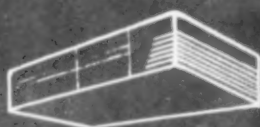
Airditioners *
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Air Conditioning Section

COOLING • HEATING • CIRCULATION AND HUMIDITY CONTROL



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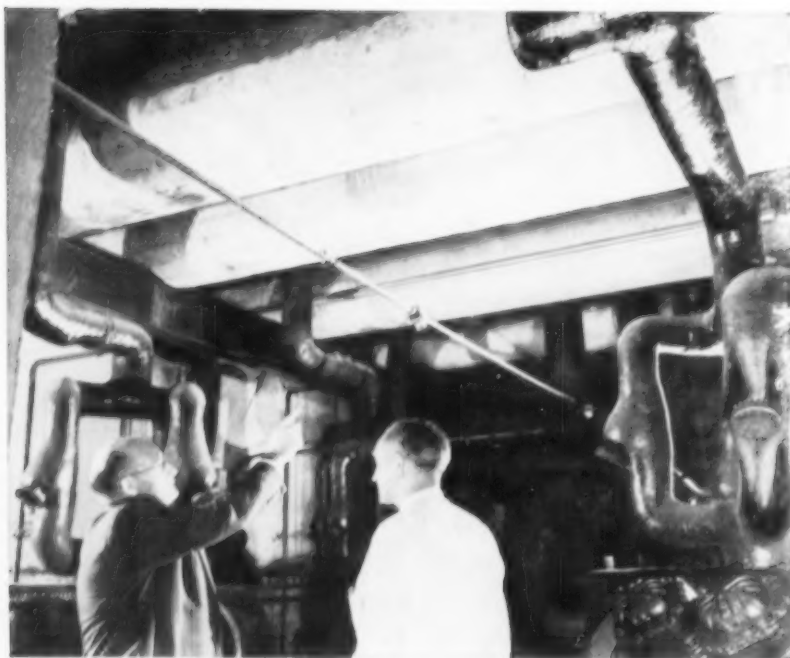
COMMERCIAL



INSTITUTIONAL

READER'S GUIDE

High Velocity Systems	71
65 Tons of Integrated Air Conditioning	76
"Cooling Only" Wasn't Enough	78
Air Conditioning Indispensable to Laboratory	79
Want To Have the "Sharpest Pencil" in Town?	80
A 4-Package Central System	84
Useful Air Conditioning Literature	88
What's New in Air Conditioning Equipment	90



"They've never given us a bit of trouble," states Mr. R. E. Noll (left), Store Superintendent. With him is Mr. J. L. Quisenberry, Head of Maintenance for Wolf & Tinsman, who was with the store when the eight Dry-Ex units were installed in 1937. The system, including eight 50 hp condensing units and 15 remote air handling units, air conditions the main building's seven floors. The system was installed by Hipskind Heating and Plumbing Company of Ft. Wayne.

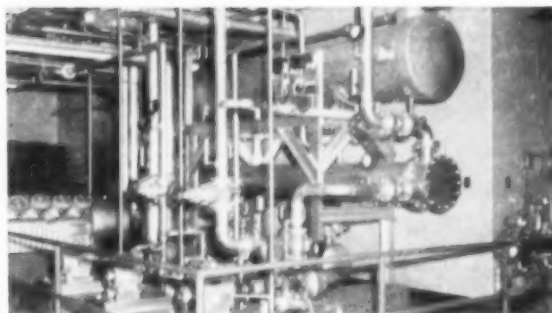
19 YEARS OF TROUBLE-FREE SERVICE

**First Acme Dry-Ex[®]
Chillers still in
operation in famous
Indiana department
store**

Operating with full capacity and efficiency since 1937, eight Acme Dry-Ex Chillers in the Wolf & Tinsman department store, Ft. Wayne, Indiana have never required any maintenance other than routine cleaning. As a result, in almost 20 years of operation, this busy store has never lost a day's air conditioning through interruption of service by these Acme units.



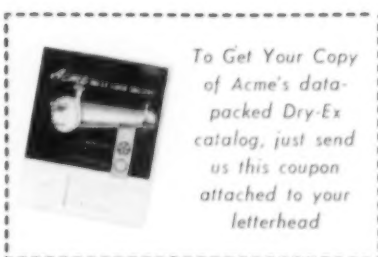
MODERN DRY-EX CHILLERS do all kinds of air conditioning, refrigeration and industrial, direct-cooling jobs. This Dry-Ex air conditions the American Loan Association building at Anderson, Ind. The system also utilizes an Acme evaporative condenser.



100 TON DRY-EX AND ACME FREON CONDENSER are major components of this Company's Ohio air conditioning installation in Western & Southern Life Insurance Company's modern office building. Two Acme Flow-Mixer cooling towers allow constant re-use of condenser water.

The modern Dry-Ex combines the dependability of Acme's thru-tube construction, proven in 19 years of broad field experience, with the added efficiency of an exclusive star-insert tubing. You receive more chilling capacity per dollar of investment than ever before.

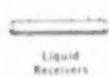
Acme custom builds Dry-Ex Chillers, utilizing standardized parts, to meet exactly the conditions of virtually any water chilling or other liquid cooling application. Capacities from 5 to 400 tons are available in single or multi-circuit units. Two model series, one with star-insert tubing and the other with plain tubing, are available. A wide range of baffle and head pass combinations make it possible to achieve ideal, controlled liquid velocities.



Acme INDUSTRIES INC. Jackson, Michigan



Dry-Ex Liquid Chillers



Liquid Receivers



Heat Exchangers



Condensers



Packaged Chillers



Packaged Heat Pumps



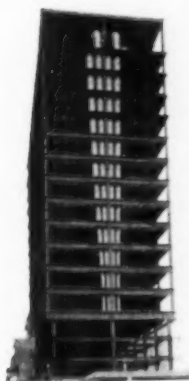
Evaporative Condensers & Cooling Towers



Room Conditioners

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COVER
STORY



What every air conditioning contractor
should know about

HIGH VELOCITY *Systems*

by F. G. Honerkamp

Chief Engineer
Anemostat Corp. of America

THE engineering principles of high velocity air distribution have become increasingly well known in the past few years, and tremendous new markets for air conditioning are now opening up. The progress in high velocity technology is seen in the number of air conditioning systems of this type now being installed in older buildings that could never be air conditioned with conventional systems. In addition, important savings are resulting from high velocity installations in new buildings.

For the contractor, high velocity has a number of important implications. First, the new markets will greatly increase the number of jobs. Because high velocity requires less space and, consequently, less "butchery" of the building in cutting and patching, the contractor has better control over his labor costs.

The main reason for using high velocity is its space-saving characteristic. The high velocities at which air is sent through the ducts, and the high temperature differentials between room air and supply air, make possible a considerable reduction in the size of ducts used. This saving creates, in effect, additional space in the conditioned building.

It is for this reason that high velocity air conditioning has found its principal applications in office buildings, where all rentable space must be fully utilized. High velocity also has attracted great interest in the hotel field, where the problem of space economy is coupled with that of providing individual room control in a large number of small areas.

The savings in ductwork also result in a considerable reduction in the amount of insulating material used in the ducts. The amount of insulation varies, of course, among installations, but in high velocity systems it is roughly 50% of that required in low velocity systems.

Another advantage of high velocity is its adaptability in providing flexible zoning and air distribution. High velocity air distribution can allow for changes in the lighting and occupancy loads without physical changes in the distribution system. Temperature can be regulated by manual, remote-manual, or thermostatic controls located in each area, with no adjustment at the central refrigeration plant.

All supply air in a high velocity system is processed in the central refrigeration plant, and distributed to

"For the contractor, high velocity has a number of important implications. It greatly increases the potential for new applications, and makes possible better control over labor costs."

HIGH VELOCITY SYSTEMS

the conditioned areas through a network of risers and ducts. The two main classifications of systems are the single duct and the dual duct.

In the single duct system, air is fed through one duct throughout a zone, with air temperature for each bay being controlled by regulation of the quantity of air supplied at the diffuser outlet. In addition, temperature in the duct is varied according to the time of day and the season. The control supplied at each outlet provides a finer adjustment for bays or rooms to accommodate individual requirements. This system supplies adequate control for many applications.

The dual duct system is used wherever more flexible control is required. In this system, air is supplied through a pair of ducts, one supplying hot air and the other cold air. At each outlet the attenuator-diffuser unit is tapped on to both ducts and the air quantities are mixed in the attenuator. Control is supplied by regulating the proportions of hot and cold air which are admitted into the mixing chamber. This method of control is much more precise than that in the single duct system, since the total quantity of air supplied to the occupied area remains the same.

Many variations of these systems have been developed, such as the dual duct vertical, single duct horizontal arrangement, in which air is supplied to each floor of a building through a pair of risers and distributed on each floor through a single duct layout. In this way, temperature for each floor is controlled by mixing the hot and cold air supplies in a mixing chamber. Further control can be provided by regulating the quantities supplied from the single duct system at each outlet.

Noise Control Can Be Designed Into System

A distinct advantage of high velocity systems lies in their adaptability to quiet operation. Due to the use of the attenuator chamber, noise control can be designed into the system according to the requirements of the individual installation. Although noise control can be designed into a low velocity system also, it tends to become cumbersome and expensive to operate.

Another aspect of quiet operation in high velocity systems is the elimination of cross-talk between rooms, due to the use of the attenuator box. Since each outlet is fed directly from the ducts through its own attenuation chamber, noise in the conditioned area does not travel through the ducts to other parts of the system.

The basic components of a high velocity system differ in a number of respects from those of low velocity systems. Therefore, in designing such a system, a number of important factors must be considered.

Valve-Attenuator-Diffuser Combination. This unit is the least understood but most critical part of the system. There are as many different types of valves on the market as there are diffuser manufacturers.

At the present time the majority of installations use valves which can be divided into five general classifications: (1) plunger and perforated cylinder type; (2) rocket socket type; (3) conical or hemispherical type; (4) opposed blade or multiblade type; (5) streamlined disc damper. Special sliding or bladder type valves are also available with their application generally limited to dual duct installations.

Although of different design, all these valves pinch out the static pressure by some velocity conversion method with minimum static regain. The object is to reduce the static pressure with the least amount of noise regeneration and to keep the size of the associated attenuator to a minimum.

Sound Levels Affected by Capacity and Pressure

Of great importance in these units are the sound levels as affected by capacity and imposed pressures and the minimum static pressure. The minimum static pressure is defined as the pressure necessary at the unit intake to force a specific quantity of air through it when the valve is in the wide open position. The low velocity parallel to this figure is the pressure at a takeoff which is necessary to turn the air into the takeoff and force it through the accessories and out through the diffuser.

End Section of the System. The end of the system is extremely critical. Since the fan horsepower is determined by the net duct losses plus the minimum static pressure of the valve-attenuator combination, the selection at the end section of the system is extremely important.

For example, an arbitrary selection from a table for a unit of 350 cfm may show a minimum static pressure of .65". If the selection tables are studied, however, it will be found that the next size attenuator-diffuser combination for the same capacity requires only .2" of static pressure, which reduces the fan static a very important .45".

This observation does not apply to the very last valve-attenuator on the line; it applies to a group of units on the end section until the duct friction has been built up to justify the use of units with high minimum static pressures without penalizing the fan.

Pressure-Sound Characteristics of Standard Valve-Attenuator Combinations. Another characteristic of these units is the change in the sound level at constant capacity but with variable pressure. The variation in sound level is eliminated by proper equipment selection, but the variation is great enough to demonstrate the importance of reducing the pressure on valve attenuators, either to keep the sound level down or to allow the use of smaller and less expensive equipment.

There is no positive logic in going to expense and trouble to bring low sound level air to a terminal and then build up the sound level again by a rugged conversion as the pressure is reduced.

Takeoffs and Transitions. To design an economical system the engineer must streamline the main distribution duct to the practical limit. This means tapered



INSTALLATION TECHNIQUES for high velocity systems are illustrated here. Photo at left shows a method of installing ductwork in a single-story building to cut down overall building height. Ducts and attenuator chambers are located in open web joist area. One means of providing takeoffs in high velocity systems is illustrated below. In this building, low sill heights required installation of ducts beneath the floor to supply under-the-window units on the floor above.

transitions and, at the end section of the main duct, acute-angle take offs with maximum conservation of the velocity pressure. In the section of main duct near the fan where the static and velocity pressures are high, however, the designer should study the advantages of using branch takeoffs which lose all the velocity pressure.

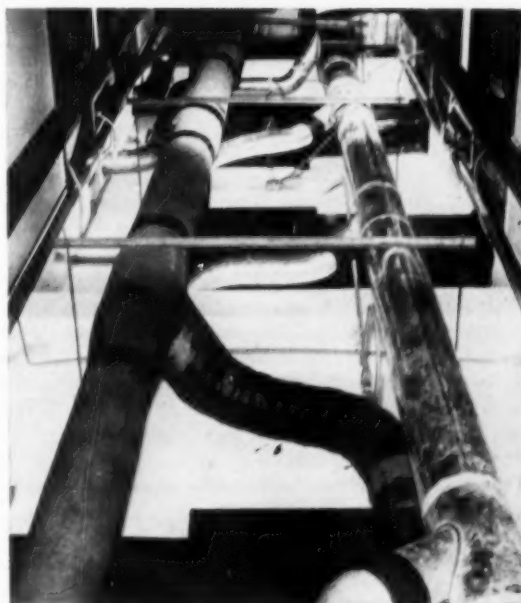
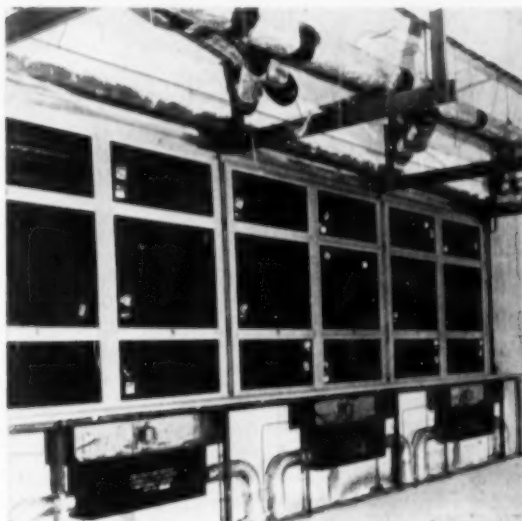
Here, also, the designer should study the possibility of using small branch ducts and high velocity so that both velocity and static, or the total pressure is reduced to take a pressure load off the attenuator-diffuser units.

It should be pointed out that, because of the use of attenuator boxes, balancing becomes a much simpler operation in high velocity systems than in low velocity. In low velocity systems, each outlet has to be balanced in relation to the pressure at all other outlets. The high velocity attenuator chambers, however, present the engineer with a series of individual, and largely unrelated balancing problems, rather than one big problem with a series of phases.

A long turn elbow has approximately half the pressure loss of a short turn elbow. As the angle of branch takeoffs increases, the pressure loss is increased. This means that near the fan it may be advantageous to use right angle takeoffs to lose pressure but near the end of the system acute angle takeoffs are more logical.

Duct size and, hence, cost is controlled by the velocity of primary air and the temperature differential between primary and induced air. In high velocity-high temperature differential systems, duct size is reduced substantially.

For construction considerations, and in order to maintain low enough duct friction and thereby limit fan power requirements, either the velocity or the air quantity in ducts must be kept within certain limits. To confine installation cost and operating expenses



LACK OF SPACE in older buildings is no handicap to high velocity systems. A minimum of building alteration is required when ducts are furred in over a new hung ceiling as shown above.

HIGH VELOCITY SYSTEMS

of a high velocity air distribution system, it is necessary to restrict the primary air quantity to the irreducible minimum required for ventilation.

By conveying only small primary air volumes, very high velocities can be maintained in the supply ducts without requiring excessive fan power. Practical velocities are from 2500 to 4000 fpm with a maximum of $2\frac{1}{2}$ to $\frac{3}{4}$ " static pressure in the supply system. To avoid high fan horsepower, high velocity systems should be held within the operating limits of Class 2 fans ($6\frac{3}{4}$ "), and preferably should be designed for a maximum of $4\frac{1}{2}$ to 5" static pressure.

Although velocities and pressures of high velocity systems are high, they are not high enough to influence the simplifying assumptions on which the design of ventilating and air conditioning ducts is based. The design of high velocity ducts does not fundamentally differ from the design of ducts for a conventional air conditioning system. However, due to the high velocities and pressures used, the ducting must be carefully designed in order to make the system efficient and economical.

In designing the ducting of high velocity air conditioning systems, the two basic modern methods of duct design are the equal friction and static regain methods. Generally, the equal friction method is used, and the design is improved by giving careful attention to possible static regain.

Round Ducting Best for High Velocity

Experience has shown that in high velocity air conditioning systems rectangular ducting is inferior to round ducting in every respect, and the use of round ducting has, therefore, become the accepted practice. Rectangular ducting should be used only where the space demands it — for example, if a transition has to be fitted under a beam. Rectangular duct sections must always be reinforced with angles or bars, and the seams and joints welded. The thickness must be two gages heavier than that of conventional rectangular sheet metal ducts.

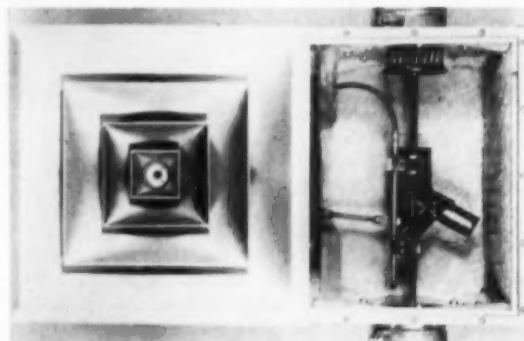
Either the common shop-made rolled ducts with locked seams, or special commercially made round ducts — for example, spiral wound steel ducts — are used in high velocity air conditioning systems. Whatever ducting is used, elbows, transitions and other fittings should be standardized as much as possible. Turning vanes, orifices or duct dampers should always be used with caution.

Adhesive tape is used for sealing the seams and joints of shop-made ducts; to make the ducting as smooth as possible and to minimize leakage and noise, a special mastic sealing compound is applied both to the ends of duct sections before joining, and to the inside of all seams and joints. Sometimes the more expensive methods of soldering, or of riveting and soldering, seams and joints are used to make the ducts airtight.

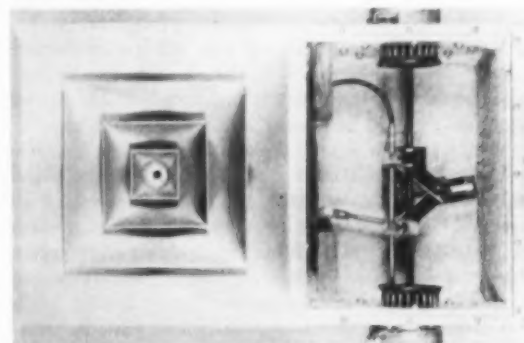
To obtain proper adhesion of the tape to the metal and permanent sealing of the duct, all seams and joints must be cleaned with carbon tetrachloride before the tape is applied. Carbon tetrachloride is non-inflammable but should be used only in well ventilated locations.

To prevent mechanical vibrations from entering the high velocity units, or at least to minimize vibration of the units, a flexible instead of a rigid connection should be used between the duct takeoff and the inlet of the high velocity unit. This has the added advantage of making exact alignment of the two elements unnecessary, which is imperative if a rigid connection is used.

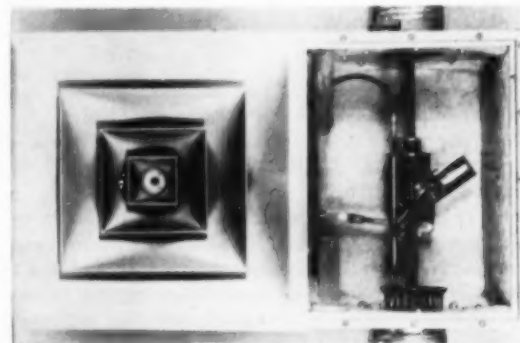
Continued on page 100



PROPORTIONAL AIR MIXING CONTROL with hot air duct open all the way and cold air duct completely closed . . .



. . . with both ducts open to provide equal air mixture . . .



. . . and with cold air duct open, hot air duct closed.

**2 BIG REASONS WHY
AMERICAN BLOWER
PACKAGED AIR CONDITIONERS
INSURE A SUCCESSFUL
INSTALLATION EVERY TIME**

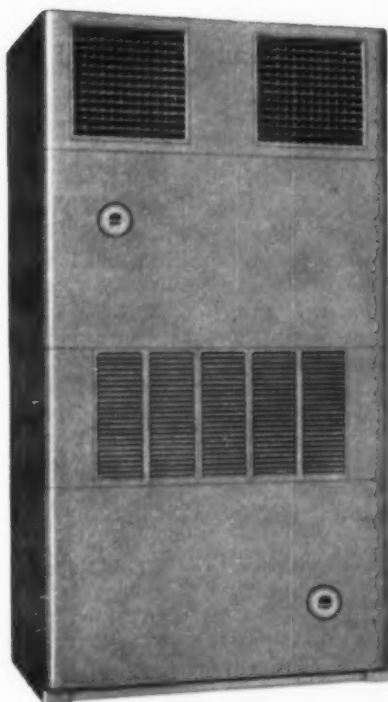


1

The American Blower Packaged Air Conditioner is performance-proved, and packed with the features your customers demand. It cools, filters, dehumidifies, circulates, even heats with the addition of heating coils, and operates quietly. Easily installed with or without ductwork. Sizes from 3- to 20-tons satisfy the cooling requirements of all average installations. And there's a 5-year factory warranty on entire refrigerating circuit.

2

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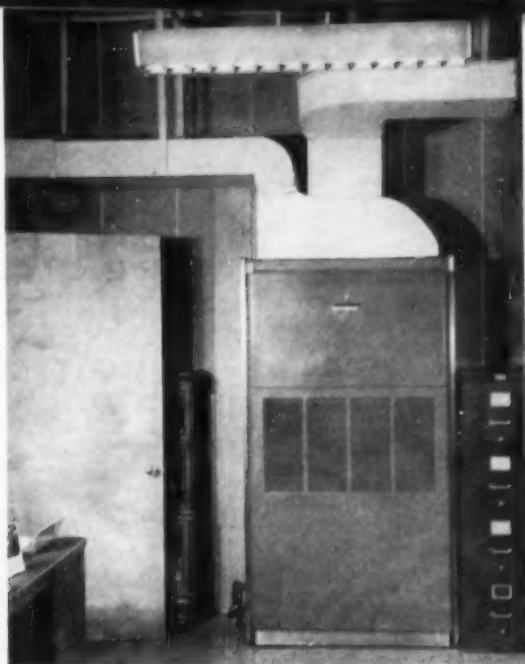
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GENERAL OFFICE area was the first to be conditioned, with this 3-ton package unit discharging through short lengths of duct.

**It took 6 years and
15 pieces of equipment**

to build up this Ohio printing plant's...

65 tons of Integrated Air Conditioning



NEGATIVE ASSEMBLY DEPARTMENT of the firm's offset printing operation was the first section of the plant area to benefit from air conditioning. To cope with the humidity problem, this 5-ton unit was equipped with a humidistat as well as a thermostat.

THE printing plant of Gray Printing Co. in Fostoria, Ohio, is comfortably cooled by 65 tons of air conditioning—but not all in one system. The overall installation, in fact, is composed of a total of 15 separate and independent units added piece by piece over a period of more than 6 years, as the need for increased conditioning became apparent and the company's management felt able and willing to make the required expenditures.

Results of this long-term program offer convincing proof that sizeable air conditioning installations can successfully be built up on a piecemeal basis. In addition, they emphasize to air conditioning dealers and contractors the importance of getting "one foot in the door" through sale of a small unit for a specific purpose to those customers whose resistance to the purchase of a complete installation can not be broken down.

Working hand-in-hand with the Gray organization on the development of the plant's air conditioning was Nye Implement Co., Frigidaire distributor in Fostoria. Ivan Sheffer, Nye's salesman on this job, was responsible for most of the engineering involved, working closely with president Gordon Gray and Paul Karrick, the plant's maintenance superintendent.

What started the ball rolling was Gray's decision, way back in 1947, to install a 3-ton package air conditioner to cool a portion of the firm's executive offices. So pleasing was the atmosphere created by this unit that some ductwork was tied into it in an effort to make the unit serve a greater area than it was designed to handle.

The results of this move led the following year to the installation of a 5-ton unit at a different location in the office area. This unit was deliberately oversized for the area it was intended to serve, so that spillover from this area would help carry the space inadequately served by the 3-ton unit.

It wasn't long after this that the management of the Gray company became convinced that air conditioning might prove the solution to some of their problems in the various production areas of the plant, where excessive humidity as well as temperature caused considerable spoilage and lost time.

The first move in this direction was the installation of a 5-ton package unit in the negative assembly department of the plant's offset printing operation. Here humidity control was a critical factor, and so the unit was equipped with a humidistat as well as a thermostat. Control cycle of this unit was established in such a way that the unit would satisfy the desired comfort conditions first and then handle the humidity control automatically. Thus the unit functions to control humidity even in the off season when cooling is not required.

So successfully did this installation perform that the management soon decided to apply air conditioning to other areas of the shop, as well. Consequently, one 7½-hp package was installed in the composing room and another in the letterpress printing department.

At the same time, a 5-ton unit was installed in the offset printing department, and another 7½-ton unit was recessed into a partition between the offset department and the plate making department, in order to serve both areas. This latter unit was equipped with the same type of humidity control as the unit in the negative assembly department.

The two units in the offset department were installed on a free-blow basis, while some small amount of ductwork was tied into each of the other units to

direct the conditioned air to the points where it was most needed.

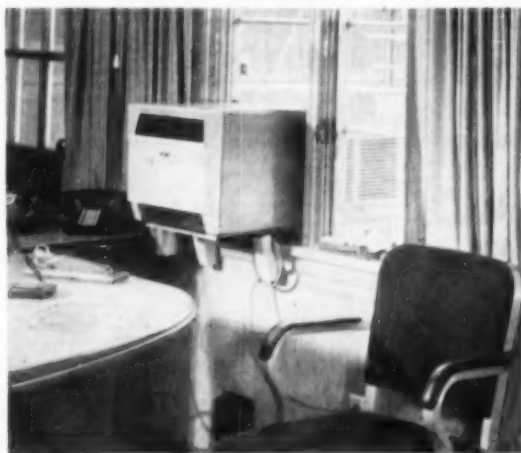
In these production areas, Gordon Gray points out, air conditioning has performed a very important dual function. In the first place it has established an atmosphere of human comfort which has produced a noticeable increase in the output of the plant's personnel as a result of their improved physical wellbeing and mental attitude. In the second place it has minimized such mechanical problems as faulty register resulting from paper shrinkage or swelling, and the melting of the soft rubber press rollers due to excessive temperatures.

All of the air conditioners installed up to this point had been water-cooled units. The first two units in the office area were hooked up to operate directly on city water, but when the shop units were installed it was decided that some other means of water sup-



BINDERY DEPARTMENT, a 4200-sq.ft. addition to the plant, required the largest air conditioning unit. This 20-ton, ceiling-suspended model is equipped with duct heaters for year-round operation.

PRIVATE OFFICE of the company's president is cooled by two window units, one of ½-hp and one of ⅓-hp. Similar units fill in other gaps in the plant's master air conditioning plan.



ply or conservation would have to be utilized in order to keep operating costs down to a reasonable level.

As a result, two wells were drilled. One 5-ton and one 7½-ton unit were set up to use water from one of these wells. After serving to cool the units, this water then was run down into the other well.

To handle the other 5-ton unit and the other two 7½-ton units, a 20-ton cooling tower equipped with a 2-hp pump was mounted on the roof of the plant. Each of the package units has its own standard thermostat control and operates independently, and the cooling tower itself is controlled in such a way that the starting up of any one of the units will actuate the tower and pump.

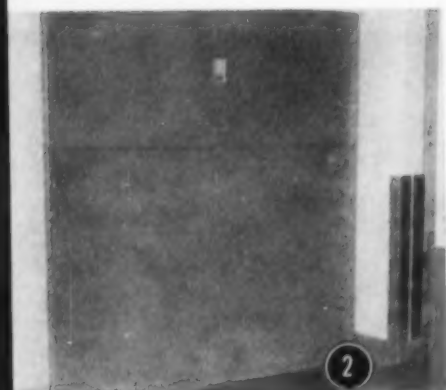
In 1953 Gray erected a 4200-sq.ft. addition to its plant to house the firm's bindery operations. It was

Continued on page 86



"COOLING ONLY" WASN'T ENOUGH

This hospital system, as originally planned, was for summer comfort only — but it wound up as an all-year installation using an interesting combination of equipment



IN an increasing number of instances, an air conditioning installation that started out as a cooling-only application winds up as a cooling-heating combination. Like the recently popular song says about love and marriage, it seems to be a growing practice that you can't have one without the other.

Such an installation is the one covering the cooling and heating of all operating and delivery rooms at the Massillon City Hospital, Massillon, Ohio, which combines Carrier air conditioning units for summer cooling and Iron Fireman "SelecTemp" units for winter heating.

A significant feature of this installation was that it had originally been the intention to install only the summer cooling equipment, to control temperature and humidity during warm-weather periods. However, after this equipment was installed, it was found that new modern equipment was needed equally as much to control heating in the same manner for winter operation. This led to the installa-

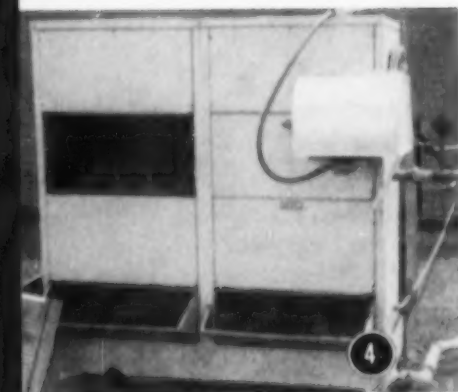
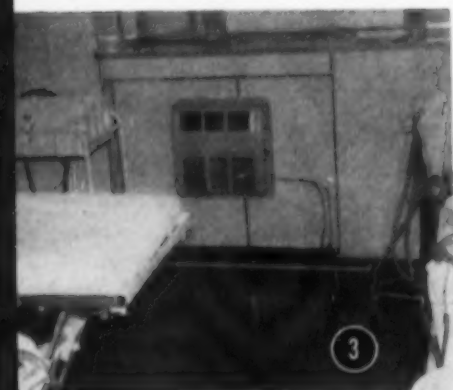
tion of individual heating units in each room served by the cooling equipment.

The all-year system serves operating rooms on the hospital's fourth floor, and delivery rooms and part of the lying-in section on the third floor.

Cooling is supplied by two Carrier packaged air conditioners, one 15 tons in capacity and the other a 5-ton unit.

The 15-ton unit is installed in the hallway of the fourth floor, this being the only accessible area adjacent to the operating rooms. The supply duct is run down the main hallway of the fourth floor, with the branches terminating in each operating room at grilles over the doorway. Since the system has been designed to operate on 100% outside air, no problem was involved in getting return back to the equipment.

Individual control of each operating room was not required, since control of the system is obtained from a thermostat and humidistat located in the main op-



- 1 ALL-YEAR** system installed at Massillon City Hospital serves third and fourth floors of the building at right.
- 2 FIFTEEN** ton air conditioner on the hospital's fourth floor serves four operating rooms. It is located in a hallway.
- 3 HERE'S** how a typical individual unit heater installation looks. This one is in a third floor delivery room.
- 4 TOWER** serving both air conditioners is located on the roof of the hospital building, directly above units.

erating room. Humidity control is obtained from steam coils located in each unit, through a modulating type valve for tempering all air introduced into the system. This enables the equipment to actually be used both summer and winter, principally for ventilation during the winter months.

The same type of system was installed in the third floor delivery room area and part of the lying-in section. This area is being served by a 5-ton packaged air conditioning unit.

Heating Control Needed

Installation of SelecTemp units was decided upon after the summer air conditioning equipment had been put in service, when it was found that the existing system of cast iron radiation as installed could not be controlled as accurately as desired.

With the new system of heating, in which units are fed with low pressure steam off the main steam supply through pressure reducing valves, each room's temperature can be controlled to within a few degrees of the individual thermostat setting.

Minimum Space Lost

Floyd Swearingen, chief engineer, together with the hospital's own crew of maintenance men, installed these units in the various locations. Details regarding locations and piping arrangements were worked out by Herbruck, Inc., air conditioning-refrigeration engineers of Canton, Ohio.

The complete installation was made without interruption in the hospital's normal 'round-the-clock operation. Since space throughout the hospital was at a premium, areas required for equipment were held to a minimum, and it was possible to enclose equipment and fur in all duct work, so that the completed installation is hardly noticeable.

The two Carrier air conditioning units are connected to a 20-ton Kennard cooling tower, located on

Continued on page 98

“... air conditioning indispensable to U. S. Envelope laboratory . . .”

- Dr. R. C. Charron, director

“IT would be difficult—in fact, impossible—to carry out the functions of our laboratory without proper air conditioning.” In that one simple statement, Dr. Roy C. Charron, director of the United States Envelope Co. laboratory at Metuchen, N. J., highlights the extreme importance of air conditioning to such industrial firms.

While technical problems like those encountered in the research and testing laboratory provided the primary motivation for the \$370,000 air conditioning, heating, and ventilating system installed in the new plant by Charles Simkin & Sons, Inc., mechanical engineering and contracting firm of Perth Amboy, N. J., the element of human comfort for the plant's employees definitely was not overlooked.

Two independent air conditioning systems, one 7½-ton and one 15-ton, with a combined capacity of 9000 cfm and 293,000 Btu/hr, were installed in the general and laboratory office areas. Design conditions for these units call for a constant 80 F dry bulb temperature and 50% relative humidity when outdoor temperatures are 95 F dry bulb and 75 F wet bulb. Both self-contained units are mounted on vibration eliminators and are equipped with throwaway filters.

Proper ventilation and control of air temperature and humidity in the laboratory, according to Dr. Charron, is as important as any of the technical apparatus used in testing paper or manufacturing adhesives, ink bases, and other materials necessary to the production of envelopes.

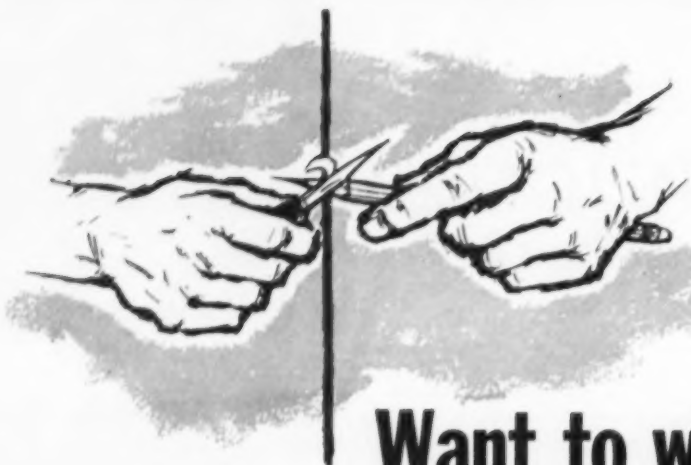
Paper testing standards set by the technical association of the pulp and paper industry call for 70 F and 50% rh. Envelope gums must be tested under standard conditions at 70 F in containers which have relative humidities ranging from zero to 100%.

In addition, microscopy, photo-microscopy, and other exacting laboratory work can be performed much more readily and exactly in an air conditioned laboratory. Comfortable conditions provided by air conditioning also help ease the strain of tiresome and time-consuming library research on technical problems.

In addition to the comfort control systems provided for the general and laboratory office air conditioning systems, automatic control for the hot water circulating systems is provided by an electronic centralized control system. For each system, an electronic control panel coordinates the signals from an electronic outdoor thermostat and an electronic supply water thermostat to gradually position a converter control valve, providing economy and comfort under all weather conditions.

In the paper testing laboratory, a space thermostat and a space humidity controller operate to maintain the desired conditions of temperature and humidity accurately within close tolerances to provide the continuously controlled atmosphere so necessary in scientific testing. The fan system operates continuously, seven days a week, and is capable of heating, cooling, humidifying, or dehumidifying the supply air.

Continued on page 98



Want to wield the *Sharpest Pencil* in town?

• This review of proven methods which have made possible more tons per dollar and more conditioned space per ton can help you quote the lowest possible costs in figuring new or revamped installations

by Edward Dowis

Use Room Coolers to Heat and Cool Where Practical / Room conditioners, with provision for heating, can sometimes provide all year conditioning at a cost not exceeding that for good heating facilities alone. This is a method adopted for a number of outlying service buildings at General Electric's newly constructed Appliance Park at Louisville, Ky.

The value and cost of air conditioning had been carefully evaluated in the planning of this industrial community and those areas were conditioned where it seemed economically desirable. It had not been planned to air condition the buildings in question until the modest cost of the room units and their low operating and maintenance costs were considered.

Heat Pumps Permit Lower Investment in Equipment / Cost comparison between modern air to air heat pumps and a separate heating plant and summer air conditioning system led owners of The Hamilton Press, of Hamilton, Ill., to select the heat pump system. The system is designed for outdoor temperatures from -10 F to 95 F.

The package heat pumps effected savings in installation, ductwork, piping, fuel facilities and floor space. Equipment is used all year, rather than either a heating or cooling system being idle. Winter conditions are better because supply air at 110 F has higher relative humidity than the much warmer air from a conventional heating system. Cleanliness is improved by absence of fuel and less charring effect of lower temperature supply air.

Package Conditioners Cut Cost of Conditioning Older Buildings / Many owners of large buildings overlook the possibility of building in a complete system of package units. The units can often be installed in halls and a supply air plenum formed by dropping the hall ceiling. Supply grilles to each room are inserted in openings through walls to this plenum. Conventional ducts can, of course, be run through halls, with branches to each room. Halls are usually used to return air to the conditioners.

A single cooling tower may be used to supply condenser water to all package conditioners. A pressure

switch on the condenser water supply line can be used to start each unit when the cooling tower is started, after which individual thermostats on the units take control. Thus the entire system is started when the cooling tower is turned on and stopped when it is shut off.

Ice Bank Systems Reduce Cost of Short Occupancy Installations / Churches are typical of places requiring a large amount of cooling for relatively short periods. A small condensing unit, with a properly designed ice bank, can operate long enough to store cooling capacity sufficient to carry the heavy demand required during occupancy.

Package Conditioners Can Be Converted to Zone Systems / By placing the fan unit of a package conditioner on the return air side, the result will be a blow-through conditioner readily adaptable to serving two or more zones. The addition of a duct coil or gas fired heater, a mixing plenum for return and outside air, and by-pass ducts and dampers for each zone, provides an all-year zoned system.

Fig. 1 shows a typical arrangement. Dampers in the zone and by-pass ducts can be positioned to supply to each zone the required volume and temperature of air, within the capacity of the conditioner. It is thus possible to divide the capacity of the economical package unit into two or more zones. A five-zone system using a 5-hp conditioner was recently installed in Cincinnati, Ohio.

Pre-Cooling and Pre-Heating of Air Effects Economies in Operation of Heat Pump System /

A water coil, preceeding the main cooling or heating coil, may effect substantial savings in installation and operating costs for heating, cooling, or both. This is particularly true where water is available from wells, streams, or other sources, for the cost of pumping. This feature is embodied in a loan company installation in Canton, Ohio. This heat pump installation was selected after competitive bids for conventional heating and cooling systems.

Hood and Vent Heat Producing Equipment /

Industrial and food service installations have numerous appliances which emit either sensible or latent heat. Much of this can be removed by venting to the outside atmosphere through hoods and ducts.

Use of ventilating fans to cool attics, kitchens adjacent to conditioned dining rooms, or industrial areas next to offices, usually prove effective in reducing the air conditioning load. They are the most economical way of cooling areas where mechanical cooling is not feasible.

Carrier Wave Control System Reduces Wiring Cost in Large Buildings /

A recent development in electronic controls is being applied to air conditioning systems in larger buildings. This consists of a small high-frequency generator which can send signals over the power and lighting wires within a building to start and stop fans or other components of a

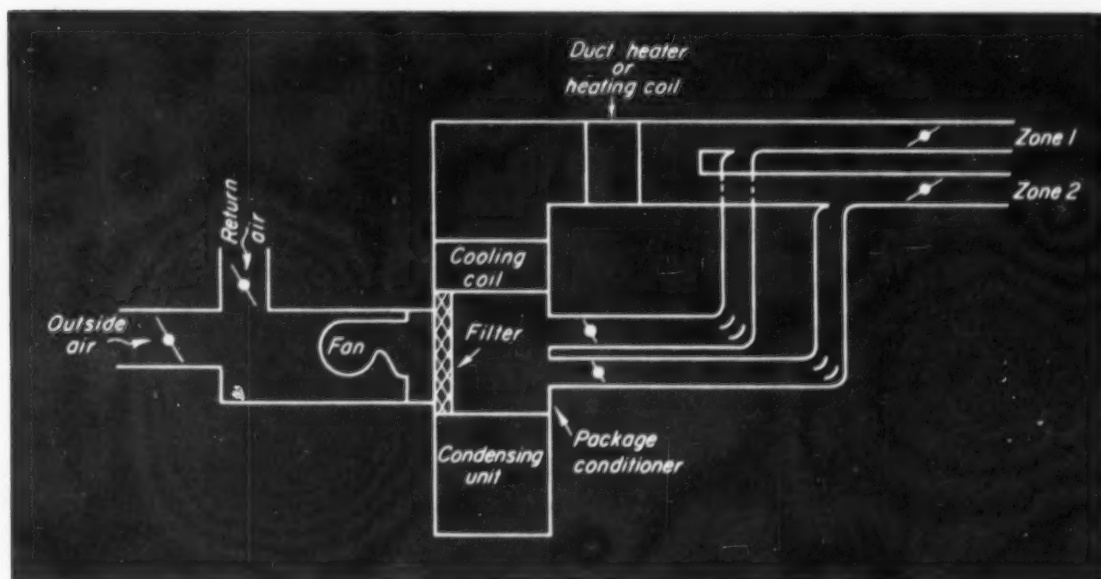


FIGURE 1 — Typical arrangement converting packaged conditioners to zone systems by placing the fan unit on the return air side and providing dampers in the zone ducts to regulate air volume.

system on a pre-arranged schedule. The system will transmit as many as four frequencies and as many as ten coded impulses on each frequency, which makes possible the control of as many as forty operations from a central point with no connecting control wiring.

The transmitter is able to send out test impulses every few minutes, which indicate to the building engineer which equipment is on or off at a given time. Thus he is able to locate many difficulties before operating conditions make them evident.

Unit Timer Cuts Operating Cost / Manual control of air conditioning equipment usually results in failure to achieve most satisfactory conditions, or poor economy due to operation when not required. Timers should be installed where economy can be improved. Timers are available which can be set to discontinue start or stop the equipment at any hour of the day, and to operation during week-ends.

Improved Air Cleaning Cells Require Less Capacity / It has long been recognized that removal of odors by activated charcoal cells reduces outside air requirement. Where conditions require considerable ventilating air, this represents an important part of the cooling load. Reducing the outside air requirement means less running time or less equipment for the same space. Activated charcoal units are now available to replace conventional filters.

Before discarding existing filters, the amount of lint, dust and other solid containments in the atmosphere should be considered, also the ability of the proposed activated charcoal cells to handle this material. It may be found best to use both types—the conventional type for dust and lint, the charcoal type for vapors.

Condensing Units Mounted on Roof Reduce Installation Costs and Keep Condenser Heat Out of Conditioned Space / Mounting of package condensing units directly over ceiling mounted air handling units cuts refrigeration piping costs to a minimum, permits servicing most equipment without entering the occupied space, and reduces the cooling load. This method of installation is becoming increasingly popular for one-story flat roof store buildings.

Inexpensive Roof Spray Pond Cools Two Ways / Flat roof structures can often have the roof treated and drains provided so that a shallow pond can cover the roof area. Discharge water from condensers is sprayed over this pond, sensible heat being absorbed to provide the latent heat of vaporization of part of the sprayed water.

The cool water in the pond absorbs sensible heat from the ceiling below. Otherwise the spray pond operates exactly as a cooling tower, except that a fan is not necessary. The number of sprays, size of piping, and other elements of the system must, of course, be engineered to the capacity and outdoor wet bulb conditions prevailing.

Flexible Duct Simplifies Air Distribution and Reduces Cost / Flexible duct, which has for some time been used for industrial air and fume handling, is finding increasing use in air conditioning. Air can be supplied to distribution centers through conventional ductwork and branches of flexible duct then can be used to carry this air to individual outlets. Much on-the-job labor is thereby eliminated.

Control of Outside Air Reduces Operating Cost / Means of purging stale air from conditioned rooms during the night, and of using outside air as the cooling medium during those hours when it is cool enough for this purpose, usually can contribute much to economical operation. A modulating controller operating fresh air dampers, and set to close them on rise of outdoor temperature and open them as it falls, will be helpful.

Return air dampers should, of course, operate by the same controller, in a reverse manner, to maintain proper balance between supply and return air. The minimum supply of fresh air required for ventilation is all that should be admitted.

High-Power Window and Through-Wall Conditioners Serve Larger Areas / New possibilities for economical self contained room conditioners are opened with the larger sizes now being introduced. We have been accustomed to consider them in the $\frac{3}{4}$ and 1-hp range. The $1\frac{1}{2}$ and 2-hp sizes now available make this economical conditioning method adaptable to places formerly requiring two or more of these units or a larger commercial installation.

Have the System Checked Each Season by a Qualified Engineer or Technician Familiar With All Developments in the Industry / This actually should have been placed first in this list if these cost-cutting methods had been placed in order of importance. This check-up should include not only inspection to see that all equipment is in proper operating condition, but also a careful analysis to determine if newly developed equipment could reduce costs, either for manpower, utilities, insurance, or maintenance.

Controls should be thoroughly checked to be sure that the system does not over-cool or over-heat, and also that humidity is not kept uneconomically low.

*Meeting
the architect's
concept*

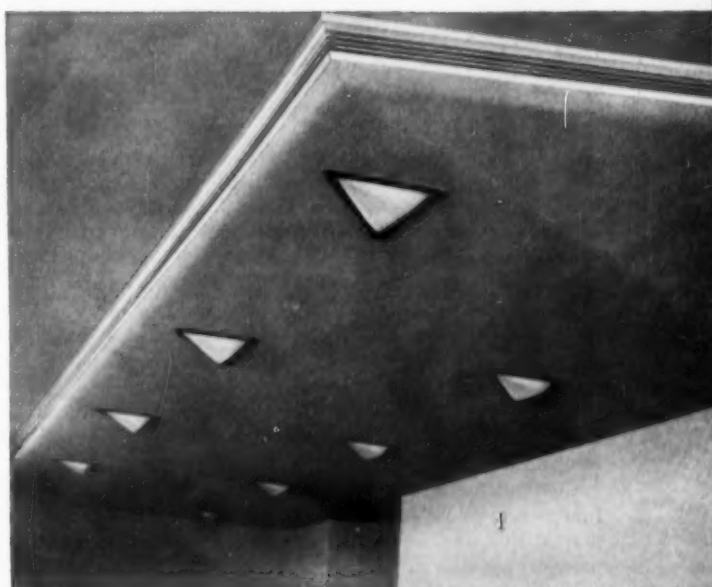


*Price Tower:
Bartlesville, Okla.
Architect:
Frank Lloyd Wright
Engineer:
Mendel Glickman
Consulting Engineers:
Collins & Gould
General Contractor:
Culwell Construction Co.*

High velocity air diffusion in the Price Tower

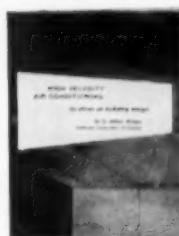
The photograph at the right shows how Mr. Frank Lloyd Wright incorporated Anemostat Straight Line All-Air High Velocity Units in the ceiling design of the Price Tower at Bartlesville, Oklahoma. The conditioned air is supplied through continuous Straight Line Diffusers located on two sides of the suspended ceiling. The diffusers do not only have vital functional use, but also add to the esthetic appearance of the architect's design.

The Anemostat All-Air High Velocity distribution system also offers important advantages. It can be used with smaller than conventional ducts. It can be installed in less time and at less cost. It requires no coils, thus eliminates leakage, clogging and odors. Furthermore, Anemostat round, square and straight line diffusers with high velocity units are adaptable to a wide variety of architectural designs.



PHOTOS JOE D. PRICE

See how Anemostat Straight Line All-Air High Velocity units are used in a typical office area. ▼



*Write for "High Velocity
Air Conditioning: Its Effect
on Building Design" to
Anemostat Corporation of
America, 10 E. 39 Street,
New York 16, N. Y.*

Anemostat—The Pioneer of All-Air High Velocity Systems



A 4-PACKAGE CENTRAL SYSTEM

... proved the best answer to the peculiar problems of this wholesale furniture firm. Here's the story of how an experienced sales engineer analyzed this job, and why he recommended and sold this particular type of an installation.

PARADOXICAL is the word for the 60-ton air conditioning system sold to Southeast Wholesale Furniture Co. in Atlanta, Ga., by E. G. Barnett, sales engineer for Advanced Refrigeration, Inc., local York distributor.

Why? Well, first Barnett — who has achieved recognition as one of the top York salesmen in the country — sold the management of this firm on the idea of using four 15-ton package units instead of one central station system. Then he turned right around and laid out the installation so that all four packages were incorporated into what amounts to a central station setup in the basement of the building.

Contradictory as this procedure might seem at first glance, actually the decision to handle the installation in this way was based upon a number of very practical considerations.

In the first place, the time element involved in this installation was an extremely important factor. The hot weather season was almost at hand when the management of the furniture warehouse finally made the decision to air condition its premises in an attempt to offset the usual summer slump in business. This meant that the system would have to be operating in short order if it was to serve its desired purpose.

This urgency for haste pointed to the use of packaged units rather than a single central station system, Barnett felt, for two reasons — delivery of the equipment could be assured sooner, and less installation time would be required.

Cost of the two types of systems, as Barnett analyzed them, would be roughly comparable, but he pointed out to the prospect two other factors favoring the use of package equipment. The first was the 5-year warranty on the units themselves, and the second was the fact that no stationary engineer would be required to operate the system.

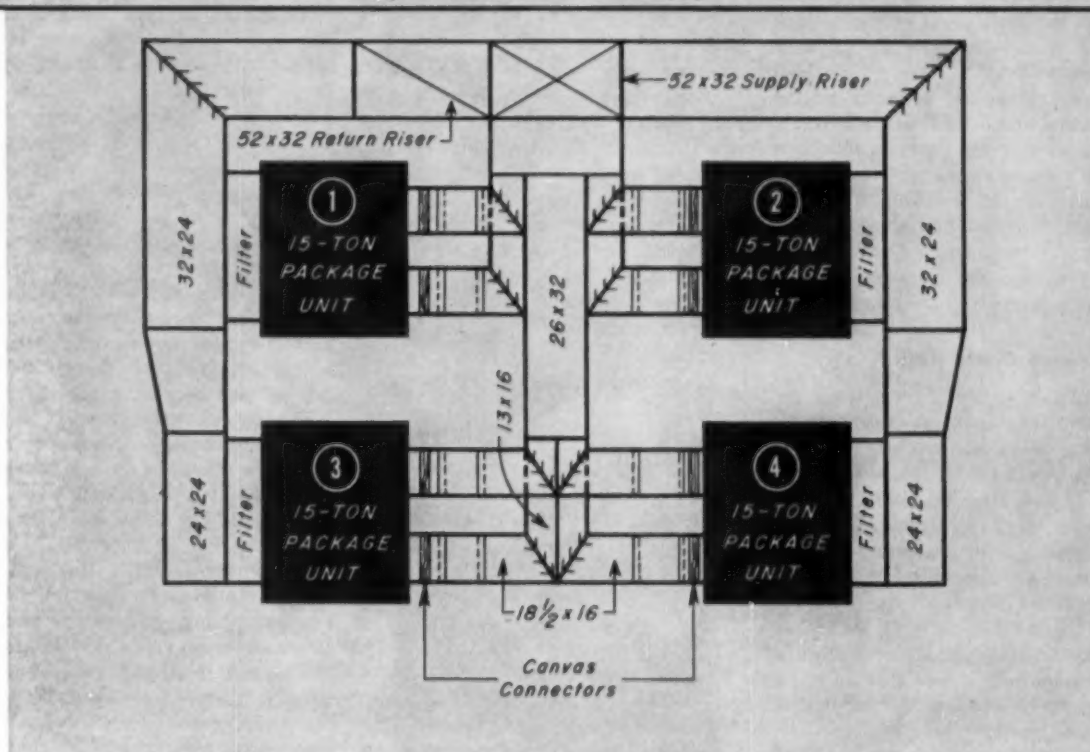
After critically appraising all these factors, the store's management gave the go-ahead to Advanced Refrigeration on the basis of the package installation.

That's where the switch came about. For instead of distributing the necessary number of package units around the various floors to be conditioned, Barnett planned a system in which four water cooled 15-ton packages would be installed together in one compact area in the basement of the building, all tied into one common supply riser and one common return.

Combining these four package units into one integrated grouping such as this, Barnett points out, made it possible to achieve better control of air distribution

"Better control of air distribution and better balancing of the load between the conditioned floors was made possible by combining the four package units into one integral cooling plant."

fire wall



DUCTED INTO COMMON RISERS for both supply and return air, these four 15-ton package air conditioners form a compact and effective grouping of equipment.

and better balancing of load conditions between floors than could have been accomplished with a single central station unit of equivalent capacity.

The building in which Southeast Wholesale Furniture Co. makes its headquarters is an old four-story loft building, with basement. Actually, however, it was desired to condition only half of the first floor, and all of the second and third floors. These are the areas in which the various furniture displays are located. Balance of the first floor and all of the fourth floor is used for nothing but storage.

Actually a total floor area of some 46,500 sq. ft., all with an 18' ceiling, is handled by the 60 tons of cooling capacity. It was possible to cool such a large area with such a low tonnage of equipment only because both the occupancy load and illumination load of these display areas is relatively light. In fact, except when any of the firm's dealer-customers are actively inspecting any of the displays, the lights in that area are turned off and both occupancy and illumination load automatically drop to zero.

Capacity of the system was calculated on standard design conditions of 95 F d.b. and 76 F w.b. outside, with 80 F d.b. and 50% relative humidity inside.

A 60-ton atmospheric cooling tower was installed on the roof of the building for purposes of water conservation. A water circulating pump was included in the installation, and a sump pump was provided for disposing of condensate.

Control of the system is provided by a 3-stage cooling thermostat mounted on the first floor wall, just above the return grille. The first stage of this thermostat starts two of the 15-ton package conditioners, the second stage starts the third unit, and the third stage starts the fourth.

Planning the ductwork for this installation was a major consideration, even though its actual fabrication was sublet to a sheet metal contractor. Principal obstacle was an existing fire wall which divided the building in half lengthwise.

Because of the age of this building, its type of construction, and the consequent seriousness of the fire hazard, it was considered undesirable to break through this fire wall any more frequently than was absolutely necessary. As a result, this single factor largely dictated the design of the duct system.

The main supply and return ducts, each measuring 52 x 32" as they leave the machinery building's room

and stepping down to 42 x 22" between the second and third floors, run up along one side of the fire wall about one-quarter of the way back from the front of the building.

The layout of ductwork on the second and third floors is virtually identical. From the main riser, one duct extends each way toward the sides of the building. Two discharge grilles on either side of each of these duct extensions blow air toward the front and toward the center of the display area.

Branch Ducts Help

Another duct leads from the main riser back along the fire wall to a point about one-quarter of the way forward of the building's rear wall. Here branch ducts again extend out toward each side of the building, with discharge outlets handled in the same manner as on the front duct sections.

On the first floor, a somewhat similar arrangement of ductwork is employed, except that only the area on one side of the fire wall is conditioned.

Splitter dampers are provided in the take-off on each floor. Lever operated registers make it possible to balance out the system with the greatest possible ease. All supply duct is insulated with glass fiber blankets where it runs through uncooled areas.

Fire Wall a Problem

With this layout of ductwork, it was necessary to break through the fire wall at only one point on the first floor and only two points on each of the second and third floors. This was advantageous not only from the standpoint of safety but also from the standpoint of installation cost, because in order to comply with code regulations it was necessary to install fire dampers of $\frac{3}{8}$ " steel actuated by fusible links at each point where ductwork passes through a floor or the fire wall. This naturally increased not only the material costs but also the labor time involved in the installation.

**BUY FROM YOUR
REFRIGERATION WHOLESALE**

65 TONS . . .

Continued from page 77

immediately determined that air conditioning would prove to be of advantage here, too, so a 20-ton, ceiling-suspended, Frigidaire cooling unit was installed to handle this area, in conjunction with two janitrol gas-fired duct heaters, each rated at 225,000 Btu. This air conditioner was equipped with a built-in humidifier and humidistat for winter operation.

Two ducts lead off of this ceiling-mounted, heating-cooling com-



ONE OF TWO 20-ton cooling towers mounted on the roof of the plant.

bination, one running straight out across the bindery area, and the other leading in the opposite direction to condition a "dead air" space in a far corner of the press room. At the same time, a new cooling tower and pump combination, duplicating the water conservation facilities previously installed for the three package units, was mounted on the roof to handle the new 20-ton air conditioner.

To fill in the gaps in the plant's air conditioning system by cooling those isolated areas not already handled by the water-cooled package units, air-cooled, window-type room air conditioners of various sizes have subsequently been installed.

One $\frac{3}{4}$ -hp and one $\frac{1}{3}$ -hp window units were installed in the ground floor copy preparation department, which is completely partitioned off from the rest of the

shop area. Another $\frac{3}{4}$ -hp unit cools the art department in a similar manner.

In the second floor office area, two $\frac{3}{4}$ -hp window units were installed to handle the conditioning requirements of the payroll department, and one $\frac{1}{2}$ -hp and one $\frac{1}{3}$ -hp window coolers have been installed in Gordon Gray's newly constructed personal office.

Future plans call for installation of a third 20-ton cooling tower to handle the two water-cooled package units that now are operating on city water and the other two that are served by the wells. This change is deemed advisable because of the prevailing high rate of water supply and sewer charges and because the lime formation caused by the well water clogs the air conditioner condensers, making frequent cleaning necessary.

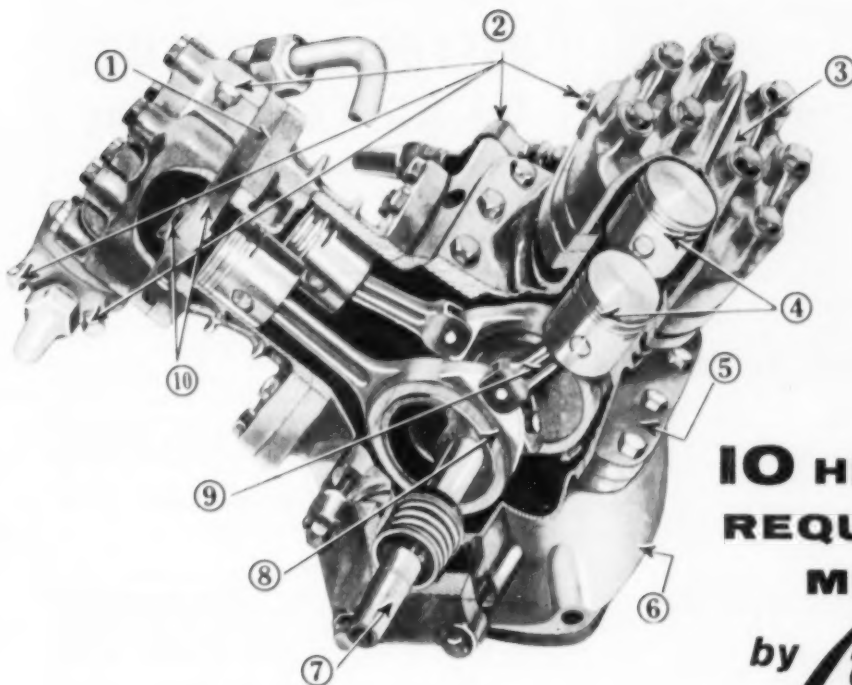
When this addition has been completed, the Gray plant will be adequately equipped for its present air conditioning needs. Any future air conditioning requirements which may result from plant alterations or expansion, Gordon Gray emphasizes, will be handled just as they have in the past—by the addition of individual units carefully integrated into the overall installation.

DRAYER "AEROVAP" GOES TO ABSORPTION PLANT

Drayer-Hanson recently delivered one of its massive "Aerovap" unit-coolers to Union Oil Co., Santa Maria, (Calif.) Valley Absorption Plant.

The unit, measuring 11' wide, 20' long, and 15' high, is designed to handle three phases of cooling for the absorption plant according to Sam Nelson, Industrial Div. manager of Drayer. It will provide final cooling for gas to high pressure absorber; additional (or final) cooling for lean absorption oil; and final cooling for raw gasoline vapors. It is equipped to handle approximately 10,000,000 Btu's.

Functions of an evaporative and aerial cooler are incorporated in one piece of equipment, permitting use of same air in both sections. Considerable savings in power consumption will result.

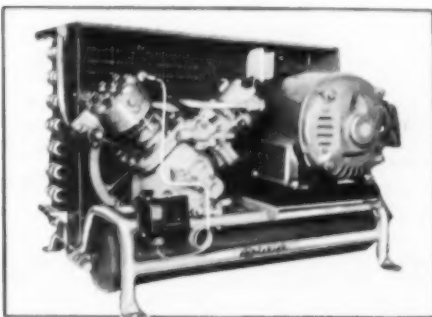


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5. Removable cylinder block. No need to remove compressor body from system to service, repair or clean crankcase area. A real time and labor saver!
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7. Heavy duty hardened shaft to controlled straightness.
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Circle No. 58 on Reader Service Card

USEFUL LITERATURE On Air Conditioning

To obtain the information described below, simply circle on the postcard in this issue the key numbers of the items you wish to receive. We will forward your requests to the companies concerned.

WARM AIR "ZONE" temperature control methods are outlined in two installers' handbooks by Minneapolis-Honeywell Regulator Co. Booklet SA2667 is designed for sheet metal worker zone theories, explaining in detail installation of dampers, linkages and damper actuators. Electrical circuit diagrams, installing instructions, and checkout procedures for various zoning methods are contained in installer-electrician serviceman booklet, SA2820-1.

Circle No. 120 on Reader Service Card

DETAILED ILLUSTRATIONS of helical fin construction of "Tru-Air" coils, methods of fabrication, etc. feature 36-page catalog issued by M. Blazer & Son. Capacity tables and quick-selection graphs in three colors are included. Also furnished is data for selection of water, heating, and cooling coils, as well as standard and non-freeze steam coils.

Circle No. 121 on Reader Service Card

A CONVENIENT REFERENCE best describes Worthington Corp., 52-page, indexed book on its new line of central station cabinet-type air conditioning units. Illustrated are the various vertical and horizontal unit models available and listed are their main design features.

Circle No. 122 on Reader Service Card

UNUSUAL INSTALLATION ADVANTAGES of "Plica" bendable tubing for such uses as hot and cold air ducts, liquid lines, and electrical conduit are outlined in 4-page Bulletin No. 61 available from Flexaust Co. Construction and cost-saving features are included. Illustrations of typical applications are supplied in addition to general information and specifications.

Circle No. 123 on Reader Service Card

COMPLETE COOLING TOWER DATA is offered in Havens Structural Steel Co. Bulletin No. 33-104-56. Various models are illustrated and performance, application, and dimensional information is included.

Circle No. 124 on Reader Service Card

CERTIFIED PERFORMANCE CURVES and specifications highlight 20-page, illustrated brochure (Bulletin DAF-101) on line of aerodynamically-designed axial flow fans by Detroit Blower Corp. Unique construction of fan blades and hubs is discussed as reason for higher pressure characteristics of fan at lower operating noise level. Various fan diameters from 12 to 72" are listed.

Circle No. 125 on Reader Service Card

LATEST DEVELOPMENTS in the field of corrosion-proofing are featured in revised edition of Pennsalt Chemicals' reference manual. Included are descriptions of the application of "Corlok", chemical-resisting mortar. Tables and charts in 8-page, illustrated manual cover specific applications of corrosion-proofing materials, giving benefits, limitations, working and handling properties, chemical resistance, and on-the-job performance records.

Circle No. 126 on Reader Service Card

PROPER PLACEMENT of the compression tank on a hot water heating system is offered by a Bell & Gossett Co. (Bulletin No. HR-656) release as the main controlling factor why certain large circulated water systems exhibit problems such as unheatable top-floor circuits, noisy, cavitating pumps, and unventable air-bound radiation. Titled, "Pressure Effects of Pump Location Relative to the Compression Tank," publication calls attention to the fact that the compression tank is the "point of no pressure change" in a system, regardless of circulating pump operation.

Circle No. 127 on Reader Service Card

SPECIFICATION SHEET that gives dimensions, component parts, accessories, and connection sizes of 10 and 15-ton packaged air conditioners has been issued by Worthington Corp. Data describes units equipped with hermetic compressor.

Circle No. 128 on Reader Service Card

COMPLETE SELECTION DATA, plus detailed dimensional drawings highlight Baltimore Aircoil Co., 12-page Bulletin No. 102 on its "MC" line of heavy duty evaporative condensers. Brochure in color covers complete line of 22 sizes from 10 to 350 tons, for Freon 12 and 22 and Ammonia.

Circle No. 129 on Reader Service Card

AUTOMATIC HEATING CONTROLS are cataloged by General Controls Co. in new publication which includes complete line of oil, coal, and electric heating controls. Many improvements and changes in gas heating controls are discussed for the first time.

Circle No. 130 on Reader Service Card

DIMENSIONAL DATA is included in catalog sheet on "Electronaire" air filters available from Hadley Products Co., Inc. Outstanding features are outlined in illustrated publication.

Circle No. 131 on Reader Service Card

BASIC THEORY of vibration isolation and shock absorption is examined in T. R. Finn & Co., Inc., Catalog No. SVC-55. Various types of machinery vibration are described. Basic data, formulae, and graphs enable reader to recognize his own problem. Practical methods of shock vibration and control are reviewed.

Circle No. 132 on Reader Service Card

SELECTION PROCEDURES for the "Wat-R-Miser" line of cooling towers are offered readers of 3-color, 4-page leaflet issued by Drayer-Hanson, Div. of National-U. S. Radiator Corp. Key improvements are stressed and three tables detail 1) entering and leaving tower water temperatures, 2) water flow gpm, and 3) nominal capacity tons refrigeration.

Circle No. 133 on Reader Service Card

INFORMATIVE PUMP DATA is contained in two bulletins (Circulars No. 184 & 189) produced by Dean Brothers Pumps Inc. The first bulletin discusses Series 10, 20, and 30 standard centrifugal process pumps for industrial, refinery, and general service. The second reviews mechanical stuffing box sealing.

Circle No. 134 on Reader Service Card

CONVERSION TABLES of wet and dry bulb temperatures and psychrometric tables are offered in The Bristol Co., 2-color, 22-page bulletin which describes and illustrates company's complete line of humidity recording and controlling instruments. Information on full line of accessories, including wet bulb fixtures, valves, and motor operators for louvers and ducts is included.

Circle No. 135 on Reader Service Card

(Turn to page 52 for more Useful Literature)

OPELOUSAS GENERAL HOSPITAL, OPELOUSAS,
LOUISIANA • TEMPLE EMANU-EL, DALLAS,
TEXAS • HULL #2290, NEW YORK, N. Y.
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(Division of National-U.S. Radiator Corporation)
Circle No. 59 on Reader Service Card

WHAT'S NEW

in Air Conditioning Equipment

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your request will be forwarded directly to the companies concerned.

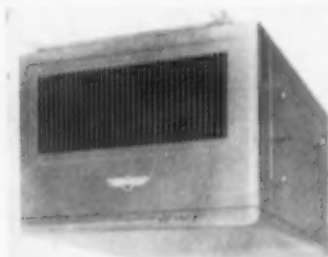
(For more New Products turn to page 54)

Air Conditioners

Product: Improved design of AH air conditioner line.

Manufacturer: Larkin Coils, Inc., Atlanta, Ga.

Features: Units balance air delivery to capacity at standard 400 cfm per ton. Can operate at high



static pressure with extended ductwork. Have large, two-direction discharge grilles and increased filter area. Constructed of steel and finished with rust-resistant primer and baked-on enamel, units are insulated with fiber glass, have frictionless, self-aligning bearings encased in Neoprene, and use resilient base motors. Cooling coils have eight tempered aluminum fins per inch on staggered seamless copper tubing. Heating coils, which use steam or hot water, are designed for installation just behind cooling coil. Five models in line range in capacity from two to 10 tons.

Circle No. 171 on Reader Service Card

2-In-1 Thermostat

Product: 2-in-1 thermostat (T29B) for buildings requiring individual room temperature control during occupancy periods with manual setback of temperature to conserve fuel when room is vacant.

Manufacturer: Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

Features: Low-voltage unit combines two thermostats and manually-operated hi-lo changeover switch in to one compact instrument. Can be switched easily to an economical non-freeze temperature setting when

room is not occupied yet permits precise finger-tip control by occupants. High setting is adjustable between 67 and 75 F. Snap of switch at base of control changes to fixed, 55 F low setting. Can be used to control either electric radiator valves in individual room temperature installations or to monitor motors on zone valves. Has locking cover to prevent tampering. Measures 5 1/4" high, 2 15/16" wide, and 2 9/16" deep.

Circle No. 172 on Reader Service Card

Air Wall Heater

Product: "Panelair" forced air wall heater.

Manufacturer: Payne Div. of Carrier Corp., Monrovia, Calif.

Features: Allows installation between normal wall studs. Can be used where convenience of forced air heating systems is desired without necessary expense of ductwork



and extensive remodeling. In addition to normal front discharge, there are two optional grille locations, one at side and one at rear. Can heat as many as three rooms simultaneously. Installations can be made against wall or recessed into wall. Heat distribution compares favorably with even most expensive forced air systems, manufacturer says, yet there is no need for ductwork. Centrifugal blower delivers warm air at floor

level and takes return from ceiling level, preventing stratification, and providing even temperatures from floor to ceiling, manufacturer says. "Jetglas" lining protects heating element from either rust-out or burn-out.

Circle No. 173 on Reader Service Card

Filter Power Pack

Product: Power pack designed for use with electrostatic air filters in room coolers.

Manufacturer: General Electric Co., Schenectady, N. Y.

Features: Will remove dust, grime, soot, smoke, lint, and pollen from air before it is circulated through house, manufacturer says. Builds up electric charge on filter and an opposite charge on dust and pollen particles in air. Tiny particles are captured as if drawn by magnet. Has low power consumption with negligible electrical load and operating cost. Particles as small as 1/25,000" in diameter are filtered out. Contains electrical filtering system to provide proper electrical characteristics for an electrostatic air filter and to limit output current under short circuit conditions. Operates on regular household circuits, 115 or 230 volts, 60 cycles. Transforms power into high voltage and rectifies it, by means of selenium or tube rectifier, to provide 3000 volts, d-c.

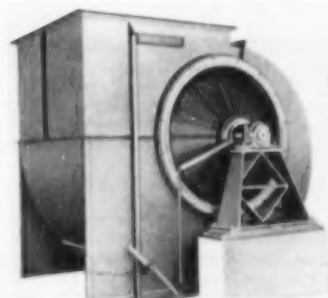
Circle No. 174 on Reader Service Card

Heavy-Duty Fan

Product: Heavy-duty "Airfoil" centrifugal fans for volumes up to 1,000,000 cfm.

Manufacturer: American Blower Corp., Detroit, Mich.

Features: Available with single and double inlet construction. Blade design and improved design of streamline inlets, wheel rims, and housing contribute to efficiency, manufacturer says. Low-operating-



cost fans operate at mechanical efficiency of more than 92% and static efficiency over 88.5%, manufacturer says. Wheel is of welded construction. Hub of cast steel is

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START MOTORS**

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Two 50 H.P. Century Part Winding Start motors power these unloading type air conditioning compressors. When starting, just half of the winding is energized, drawing less than two-thirds of normal starting current. In a few seconds, the full winding is connected and the motor delivers full torque at full current.



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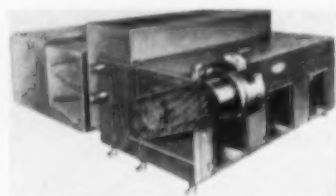
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Circle No. 60 on Reader Service Card

riveted to hubplate and bored to close tolerances for optimum fit on shaft. Housing is of all-welded steel. Split-section housing design facilitates wheel removal for inspection or maintenance. Anti-friction or self-aligning sleeve bearings are furnished. One fixed and one free bearing may be water-cooled or air-cooled as required. Sleeve-bearing design permits sleeve removal from housing without disturbing bearing support. Volume control can be achieved with adjustable speed fluid drive, inlet vanes, outlet damper, or adjustable speed a-c motor.

Circle No. 175 on Reader Service Card

Heating-Ventilating Line

Product: Expanded line of heating and ventilating products de-



signed for large area application.

Manufacturer: Carrier Corp., Syracuse, N. Y.

Features: Line offers 72 capaci-

ties and coil arrangements in six different model sizes. Output of full line ranges from 47,000 to nearly 2,000,000 Btu and from 1500 to 32,000 cfm. Versatility of equipment is made possible by six coil capacities in each of six units. Available in either distributing or U-bend tube versions. Forward-curved fan helps produce quiet, efficient performance at relatively low speeds. Designed to permit wide choice of installations including either wall or ceiling suspension or floor mounting. Can be used with steam or hot water and units work equally well with or without ducts. Air temperature can be controlled by modulating steam through distributing tube coils or by use of face and by-pass dampers.

Circle No. 176 on Reader Service Card

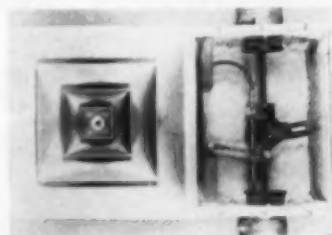
Proportional Air Mixer

Product: Attenuator-diffuser unit for use with high velocity air conditioning systems.

Manufacturer: Anemostat Corp. of America, New York, N. Y.

Features: Provides individual room or zone control by mixing hot and cold air after leaving their respective supply ducts and before being discharged through the diffuser into the conditioned area. Keeps total volume of air supply

constant while providing all hot, all cold, or any desired mixture of the two. Maintains same air flow pattern and same percentage of fresh



air at all times. Controls room temperature with no adjustments of refrigeration equipment. Proportional mixing valve inside attenuator chamber controls both warm and cold air supplies simultaneously. Operation of mixing mechanism is based on a compensating linkage which opens and closes hot and cold ducts outlets in inverse ratio, so that total air supply is held constant at initial pressure tap setting.

Circle No. 177 on Reader Service Card

Centrifugal Compressor

Product: Line of centrifugal compressors ranging from 200 to 2000 tons for use in industrial process air conditioning.

Opportunity

knocks! Be a manufacturer's representative for USAIRCO, selling central station self-contained air conditioners (RK). Architects, engineers, contractors, and industrial firms choose USAIRCO units in capacities to 60 tons. Thousands of RK units are in use in shopping centers, supermarkets, chain stores, manufacturing plants, banks, churches, restaurants, and other large buildings. Write today, giving a brief resume of your background, to Robert P. Kelley, sales manager, United States Air Conditioning Corporation, 7900 Tabor Road, Philadelphia 11, Penn. An interview will be arranged if your territory is available.

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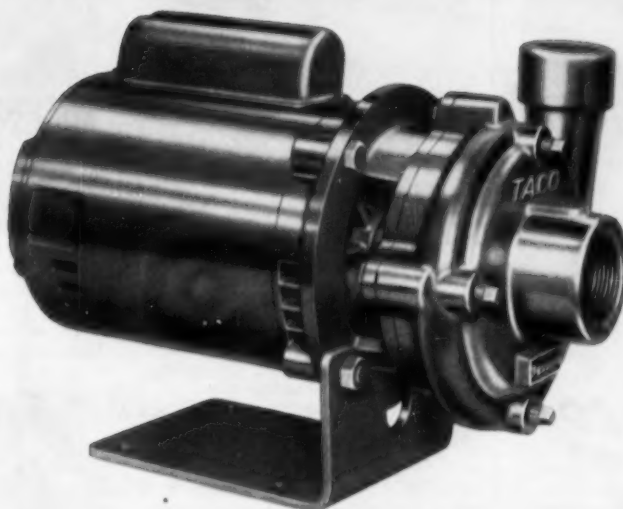
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Circle No. 89 on Reader Service Card
OCTOBER, 1956 • COMMERCIAL REFRIGERATION

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Experience, research, quality control production . . . standard with Taco in the long-time manufacture of domestic hot water heating circulators . . . are the basic reasons why the new 170 series pumps fully meet the precise requirements for all installations. Note the following features that assure peak performance:

MOTOR — Motors regularly furnished are 3450 R.P.M., 60C, Single Phase, with permanently sealed ball bearings. Motors with other characteristics available.

MECHANICAL SEALS — 2 piece type for easy replacement; self-adjusting, self-lubricating.

IMPELLER — Closed type. Balance for smooth, noiseless, efficient operation.

VOLUTE — Fine-grained cast iron with brass wearing ring. Designed for four position discharge.

MOUNTING — Heavy stamped steel base — yet flexible enough to permit slightly out of line connections without damage to pump or noisy operation.

LUBRICATION — None required.

The Taco 170 series is light in weight, low in cost, extremely compact, available in several sizes . . . it's the pump that performs best.

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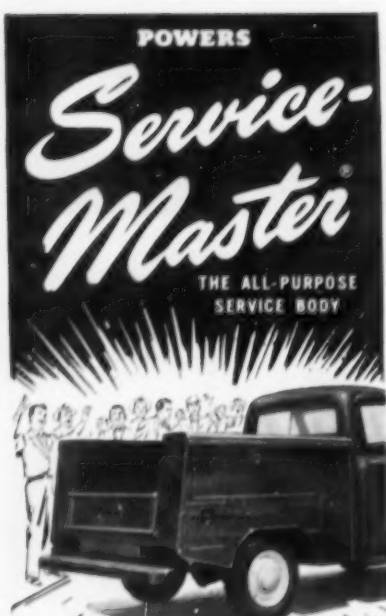
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EXTRA FEATURES!

"Freeze-free" hinges that can't bind • Concealed fenders to protect compartment walls • "Hi-Lo" floor for easier loading • "No-Bounce" bins to keep parts in place • "Puddle-Proof" cargo area . . . and many other "extras".



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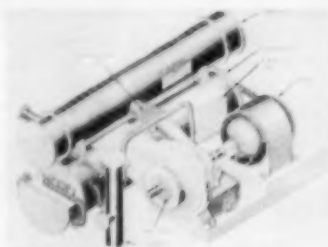
City & State _____

DJ

Circle No. 63 on Reader Service Card

Manufacturer: Kathabar Div. of Surface Combustion Corp., Toledo, Ohio.

Features: Are of overhung-type with two stages, balanced, back-to-back impellers and diffusers. Automatically controlled adjustable inlet



guide vanes provide optimum stability and efficiency at all loads, 20 to 100%, and also permit constant speed operation with squirrel-cage induction or synchronous motor with lower power input through control. Circle No. 178 on Reader Service Card

Remote Conditioner

Product: "Air-O-Matic" remote air-cooled central air conditioners in 2, 3, and 5-ton models.

Manufacturer: Eureka Williams Corp., Bloomington, Ill.

Features: Horizontal duct unit,

NEW! NEW! NEW!

"250"
SERIES
LIQUID EYE®
POSITIVE SEALING INDICATORS

designed to save you
even more time and money



6 sizes now available: 3/8", 1/2", 5/8", 3/4", 1", and 1 1/4" O.D.S.

The new "250" has all the proved Liquid Eye advantages plus these newly engineered features:

- smaller—more compact, simplified design.
- preformed copper extension eliminates need for separate gaskets—foolproof installation.
- complete, self-contained, economy unit.

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Write today for catalog covering the complete Allin line.



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Over 1,000,000 Liquid Eyes Sold to Date!

Circle No. 63 on Reader Service Card

complete with blowers and filters, can be installed in any forced air system. Simple by-pass duct and damper makes two separate systems—one for heating and one for cooling. Remote air-cooled compressor condenser can be installed quickly on any non-sinking base. Complete installation of both units normally requires less than one day.

Circle No. 179 on Reader Service Card

Add-On Conditioner

Product: Self-contained, 2-hp, add-on air conditioner (Type 923) with hermetic compressor.

Manufacturer: Mueller Climatrol Div., Worthington Corp., Milwaukee, Wisc.

Features: Entire refrigeration system is sealed against dust, foreign material, and tampering. Designed for installation with any forced air heating unit and in any type of home construction. Water consumption is reduced with coaxial,



counterflow, water-cooled condenser. Cooling coil is direct expansion fin-tube type. Optional blower packages are available for vertical or horizontal air flow. Horizontal fan will discharge either to right or left and choice of return air connections is provided. Service access is gained by turning handle on front panel of heavy-gauge steel, phosphatized casing which is insulated completely. Includes complete cycle with conveniently located control panel, 24-volt control circuit transformer, hi-lo pressure stat, fan relay, furnace relay, and thermostat connection terminals.

Circle No. 180 on Reader Service Card

Room Conditioner Filter

Product: "Snip-It" filter for room air conditioners.

Manufacturer: C. L. B. Co., Houston, Tex.

Features: Will fit all window-type conditioners in all brands and sizes. Rigidity of frame eliminates frame requirement and allows in-

stallation without any supporting device. Material employed allows easy cutting of filter to fit any size unit. Tight fit is not necessary; air is fil-



tered all the way to edge of filter. Comes in one size only—15 x 24"—thus user need not measure or know size filter he requires in advance of purchase.

Circle No. 181 on Reader Service Card

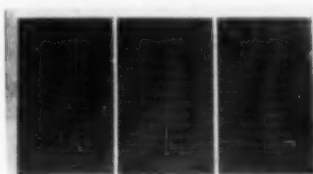
Weld-less Grilles

Product: Line of horizontal (Series 15H) and vertical (Series 15V) grilles for return air, combustion air, ventilating, and cooling systems.

Manufacturer: Lima Register Co., Lima, Ohio.

Features: Series groups are available in 57 and 56 sizes respectively. Have permanent metallic fin-

ish. Made from one solid piece of heavy gauge steel with horizontal fins and vertical mullions. No welds, mitered joints, jagged edges, or loose construction. 30-degree deflection of horizontal fins eliminates view



through grilles, and grilles may be reversed for locations above or below line of vision.

Circle No. 182 on Reader Service Card

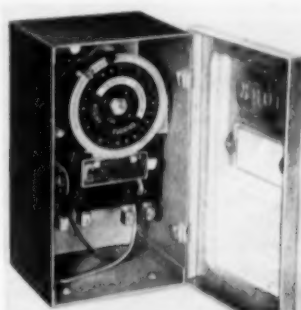
Time Switch

Product: Model No. 1962/77, double-pole, double-throw time switches.

Manufacturer: Tork Clock Co., Inc., Mt. Vernon, N. Y.

Features: Helpful in applications requiring transfer from one circuit to another, controlling of mechanically-held contactors or motorized valves, and alternation from high to low heating control. Top contacts rated 30 amps, 3000 watts (incandescent lamp load rating), 1 hp,

345 volt-amps (pilot duty rating), at 120/240 volts A. C. Bottom contacts rated 15 amps, 1500 watts, 1/2 hp, 175 volt-amps at 120/240 volts A. C.



Available in standard 24-hour on-off dial style, astronomic (for follow-the-sun lighting), skip-a-day (for eliminating week end operation), and 7-day (for varied daily schedules on 1 dial) in flush, water-tight, and surface mount housings.

Circle No. 183 on Reader Service Card

Adjustable Diffuser

Product: Adjustable-on-the-job ceiling diffuser (Model T-1) with three cones.

Manufacturer: Titus Mfg. Corp., Waterloo, Iowa.

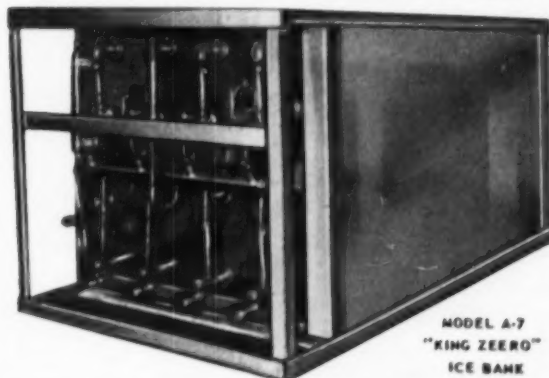
"King Zeero's" Sweet Water ICE BANKS offer ICE - CONCENTRATED Refrigeration for Air Conditioning

CONTINUOUS RIFLED GALVANIZED COILS
EXPANSION VALVE CONTROLLED

32° - 34° COLD
ICE WATER

DESIGNED FOR USE WITH:
FREON — METHYL CHLORIDE — AMMONIA

The "King Zeero" ICE BANK is designed for air cooling in Churches, Mortuaries, Theatres, Offices, Stores, Auditoriums, Factories, Clubs, Restaurants, etc. Ice Banks may be added to existing systems for increased capacity.



MODEL A-7
"KING ZEERO"
ICE BANK

CAPACITIES - 500 lbs. to 30,000 lbs. (72,000 B.T.U.'s to 4,320,000 B.T.U.'s) in a single unit. Multiple units may be installed.

THE KING ZEERO COMPANY

4300-14 W. Montrose Ave., Chicago 41, Ill.

The "King Zeero" ICE BANK is designed to deliver tons of 32 to 34 F. ice water for recirculation through air cooling coils. Peak loads many times compressor capacity are easily handled.

- DIRECTED COURSE OF WATER travels with "built-in" agitation.
- NO MECHANICAL AGITATION REQUIRED.
- LARGE WATER COMPARTMENTS spaced on 11" and 12" centers.
- 33% EXTRA ICE CAPACITY safely attained without freezing up.
- ICE IS "BURNED OFF" PLATE COILS progressively, exposing prime and secondary surface for maximum flash cooling capacity.
- ICE THICKNESS automatically controlled - eliminates "freeze ups."
- 94 SIZES to fit space requirements. Other designs for special applications.

MAIL COUPON TODAY

King Zeero Co., 4301 W. Montrose Ave., Chicago 41, Ill.

☐ Please send me your new ICE BANK Catalog.

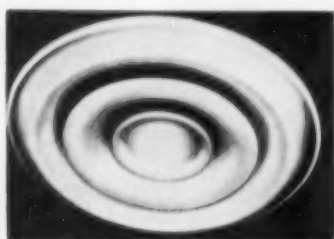
Name _____

Address _____

City _____ State _____

Circle No. 64 on Reader Service Card

Features: Spring lock arrangement permits easy removal or installation of inner cone assembly. Adjustable to two different air pat-



terns by changing screws on inner cone assembly. Heavy-duty sponge gasket around outer edge of diffuser assures air-tight installation. For exposed duct or flush mounting. Circle No. 184 on Reader Service Card

Corrosion Preventive

Product: "Humidex" tablets for protecting humidifier against corrosion.

Manufacturer: Skuttle Mfg. Co., Milford, Mich.

Features: Reduces lime deposits, scale, and other corrosive elements



to a sludge that is rinsed away easily. Manufacturer says that since harmful elements never get chance to stick to vital surfaces or working parts, their destructive qualities are nullified, assuring maximum efficiency of any humidifier at all times. Valve parts likewise are kept free of corrosive action, so that improper operation caused by sticking or leakage is eliminated completely.

Circle No. 185 on Reader Service Card

Illuminated Diffuser

Product: "Multi-Vent Troffer-lite", dual-purpose fixture that diffuses conditioned air and provides illumination.

Manufacturer: Pyle-National Co., Chicago, Ill., and Benjamin

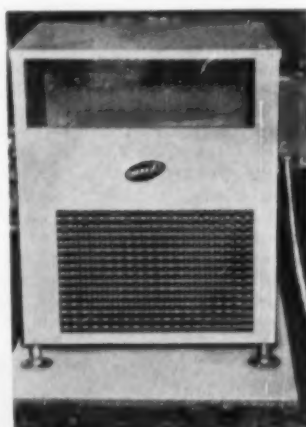
Electric Mfg. Co., Des Plaines, Ill.

Features: Is adaptable to any drop-type ceiling. Increases light output and improves quality of air conditioning, manufacturers say. Where minimum cooling is needed, fixtures can remain unattached to air duct or shut down. Eliminates dirt smudges, usually found on ceilings next to diffusers which inject air horizontally. Economical since only one fixture is needed for lighting and air conditioning.

Circle No. 186 on Reader Service Card

"Outdoor" Conditioner

Product: SAAC series, 2, 3, and 5-ton capacities, air-cooled air conditioning units especially designed for outdoor installation.



Manufacturer: Shana Mfg. Co., Chicago, Ill.

Features: Has "inverted V" evaporator coil designed for air flow of any application. Any type of existing furnace may be used for cooling coil location for either conventional or counterflow systems. Installation can be made with plenums or main trunk lines. Cooling coil assemblies have been specially designed so that minimum reduction is obtained in air flow from original source of air motivation. Air hand system includes into one package cooling coil and blower for installations that require duct systems for only cooling operation. Condensing assembly features oversized heat transfer coil for greater surface air contact area.

Circle No. 187 on Reader Service Card

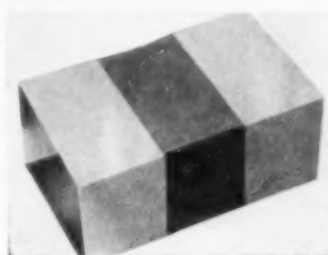
Flexible Connector

Product: Pre-assembled flexible connector material called "Econ-O-Fab Junior," for residential warm air and air conditioning ductwork systems.

Manufacturer: Duro-Dyne Corp., New Hyde Park, N. Y.

Features: Incorporates metal-to-fabric seam which prevents fabric

from pulling out or being cut. Metal and fabric dimensions which permit easy fabrication into several shapes of flexible connectors are: Metal



(galvanized iron) 2"; fabric (canvas or asbestos) 1 3/4"; and metal 2". Product is packed in 50' or 100' rolls.

Circle No. 188 on Reader Service Card

Axial Flow Fan

Product: Aerodynamically designed axial flow fan.

Manufacturer: Detroit Blower Corp., Franklin Park, Ill.

Features: Wider blade offers higher pressure characteristics with less operating noise. Hub-tip ratios

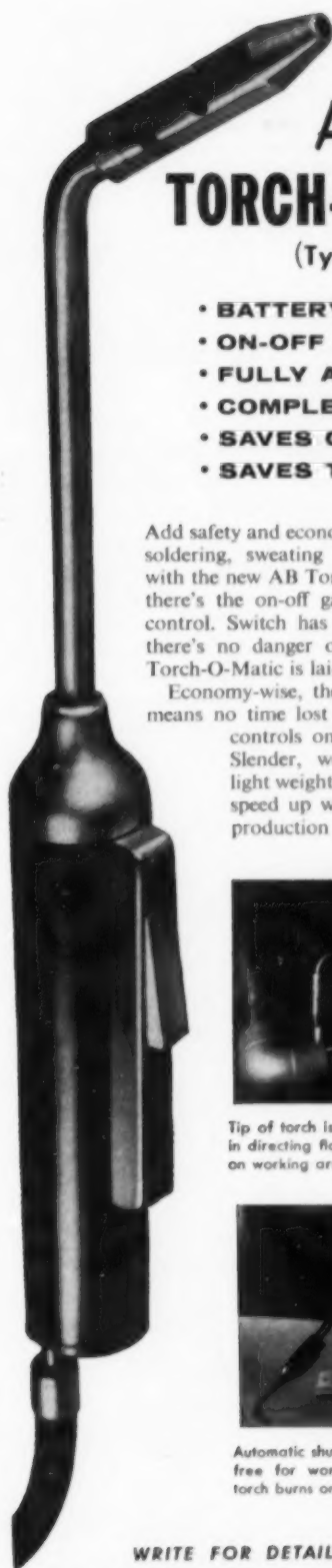


enable larger blade angles near hub to produce pressure equal to that against which unit as whole is working. Blade angles decrease to small values at tip. Welded steel wheels are available with four, six, and eight blades. Fan diameters run from 12 to 72" and have air moving capacity of 1,200 to 100,000 cfm.

Circle No. 189 on Reader Service Card

SCHOLARSHIPS OFFERED

Mueller Climatrol, Div. of Worthington Corp., has embarked on an industrial scholarship development program with the Milwaukee School of Engineering. A grant-in-aid will be offered each year to two promising students in the heating and air conditioning technician school.



ALL-NEW TORCH-O-MATIC

(Type AB)

- BATTERY IGNITED
- ON-OFF OPERATION
- FULLY AUTOMATIC
- COMPLETELY SAFE
- SAVES GAS
- SAVES TIME

Add safety and economy to dozens of heating, soldering, sweating and brazing operations with the new AB Torch-O-Matic. Safety-wise, there's the on-off gas switch with finger-tip control. Switch has no lock-on position, so there's no danger of fires or injuries when Torch-O-Matic is laid down between jobs.

Economy-wise, the instant ignition feature means no time lost lighting up or adjusting controls on those stop-and-go jobs. Slender, well-balanced design and light weight eliminate hand fatigue... speed up work on maintenance and production schedules.



Tip of torch is angled for greater flexibility in directing flame to precisely the right spot on working area.



Automatic shut-off feature keeps both hands free for worker; also saves gas because torch burns only during in-use time.

WRITE FOR DETAILS TODAY
VELOCITY POWER TOOL CO.

201 North Braddock Avenue • Pittsburgh 8, Pa.

Circle No. 65 on Reader Service Card
& AIR CONDITIONING • OCTOBER, 1956

HELP

yourself to a bigger future with a rapidly growing segment of the air conditioning field. Add large size package units (sizes to 60 tons) to your line, as a manufacturer's representative for usAIRco. An aggressive promotion policy is pre-selling the usAIRco self-contained central station air conditioner (RK) to architects, engineers, contractors, and industrial firms in your territory. usAIRco RK's are already in use in thousands of key installations across the country. Some territories open to qualified engineers with proven sales ability. Write today to Robert P. Kelley, sales manager, United States Air Conditioning Corporation, 7900 Tabor Road, Philadelphia 11, Pennsylvania, giving a brief resume of your background. An interview will be arranged.

Superb Performers

AURORA APCO
Turbine-Type

AURORA
Always
PUMPS



AURORA®
Centrifugal

for EVERY LIQUIDS
HANDLING JOB in INDUSTRY

The engineer-favor accorded "PUMPS by Aurora" rests squarely upon performance satisfaction. Why not let Aurora precision and quality serve your requirements, too?

ASK
for
CONDENSED
CATALOG M-5



AURORA APCO Turbine-Type PUMPS
are available in SINGLE STAGE • TWO STAGE • FOUR STAGE • WATER JACKETED • STAINLESS STEEL or SPECIAL METALS for "1001" DUTIES.

AURORA Centrifugal PUMPS
are available in SINGLE and TWO STAGE HORIZONTALLY SPLIT CASE • SIDE SUCTION • VERTICAL • NON CLOG • SUMP • MIXED FLOW • SPECIAL DESIGN ETC.

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WITT Zone Air

**ROOM UNIT
AIR CONDITIONER**



For New and Old Construction

"Miraculously Quiet" Zone Air, ideal for hotels, motels, hospitals, offices and other applications where silence is essential. No costly duct work—no tearing out partitions in existing buildings—simply connect pipes from unit to a cooling or hot water system.

Used with direct expansion, combination heating and cooling with water or direct expansion and steam—individual control. 14 sizes; 300 to 1200 CFM. Cecealed or cabinet type models.

Write for information
A. H. WITT COMPANY
840 N. Sycamore Av., Los Angeles 38

WITT
Coils

**OVER 30 YEARS
RELIABLE SERVICE**

NO
Stuck
Pumps
FOR ME
NEXT
SPRING!



PUMP-AID is the new aerosol product giving push-button protection against corrosion and stuck pumps on seasonally operated cooling towers, evaporative condensers, etc.

To protect against corrosion and other down period problems, inject PUMP-AID through drain hole into pump housing immediately after draining. PUMP-AID is supplied in aerosol canister using Freon type propellant which instantly spreads a generous (patent pending) coating over all surfaces. PUMP-AID is also highly beneficial in preserving neoprene, rubber and graphite type seals.

Other outstanding PUMP-AID features are: It will not freeze; will not evaporate; requires no special job preparation; adheres to surfaces permanently until flushed off;

is water soluble—not necessary to drain when new season starts, (just throw switch and begin operation); non-toxic—may be used for domestic pumps if properly flushed; economical to use. Protect "YOUR" pumps with PUMP-AID now!

...and for COMPLETE WATER TREATMENT in refrigeration and air conditioning water recirculating systems, use Vapco Cleaner, Vapco Preventive, Vapco Slime-X and Vapco Ice Cube Machine Cleaner. Available at your favorite wholesaler, or write...



The GARMAN COMPANY
ST. LOUIS 23, MISSOURI

Circle No. 67 on Reader Service Card

ENVELOPE LAB . . .

Continued from page 79

The thermostat controls, in sequence, a refrigerant solenoid valve on the compressor and a gradual acting steam control valve on the reheating coil. The sensitive human hair element humidity controller provides for dehumidification by operating the refrigerant solenoid valve, or provides for humidification by operating a gradual acting steam control valve on the pan humidifier.

Summer heat is dispelled in the factory area by a ventilating system that teams blower-type unit ventilators, propeller and centrifugal exhaust fans, and roof air intakes into a coordinated air evacuation program that can move over 292,000 cfm at peak output. During winter months domestic heat is directed over the factory areas through a chain of blower-type unit heaters which draw energy from a 15 psi steam line. Two packaged 150-hp boilers, operating in rotation, generate steam

for seasonal indoor heating requirements.

The hot water circulating system engineered into the general and laboratory office areas is complete with converter, circulating pumps, compression tank, radiation elements, and accessory components, rigged with a steam modulating control that automatically schedules indoor temperatures. A two-pipe hot water heating system with fin-tube radiators serves the laboratory and solvent storage areas.

"COOLING ONLY" . . .

Continued from page 79

the roof of the hospital, directly above the units themselves. The units are connected to the tower by means of an interlock switch, which starts and stops them independent of other equipment. This interlock feature prevents the units from operating unless both the cooling tower pump and fan are operating.

The system is designed to maintain 78 F d.b. and 50% relative humidity in the operating rooms when outside conditions are 95 F d.b. and 75 F w.b. during the cooling season. For winter operation, the system is designed to allow sufficient moisture to be added to maintain a satisfactory humidity in the rooms. This is accomplished by the humidistat in the operating room and the humidifier in the unit. A supply of 70 F d.b. air will be maintained during the winter months.

Air supply to the operating rooms ranges from 900 to 1,200 cfm, and 900 cfm is supplied to each of the delivery rooms.

REPRESENTS U. S. AIR

National Plumbing & Heating Supply Corp., Providence, R.I., has been named a distributor by United States Air Conditioning Corp. Officers of the firm are Robert C. Laurelli, president and secretary, Pasquale D. DeChiara, vice-president, Alfred A. Caldarone, treasurer and John R. Gatto, general manager.

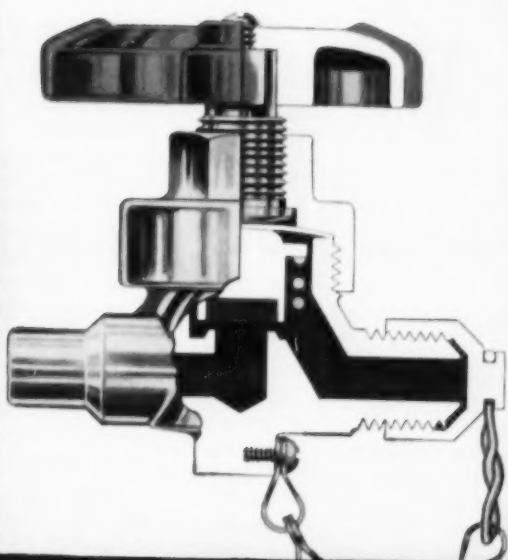
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NEW!

*good
things
come in
small
packages*

**NEW
the
KEROJET**

THE
KEROJET
CHARGE, PURGE AND DRAIN VALVE
MODEL R224X1



Features

- Full open height only 2 1/4"
- Rugged brass forged body with integral mounting flange
- 2 1/2" cast aluminum handwheel, colored for easy identification
- Seal cap attached with chain
- Beryllium Copper and Stainless Steel diaphragms offer maximum resistance to wear

**COSTS
LESS**

The Kerojet R224X1 is a new and improved Charge, Purge and Drain Valve, precision designed for refrigeration and air-conditioning systems. Available with 1/4" solder type inlet and 3/8" S.A.E. male flare outlet. Maximum operating pressure 500 p.s.i. and temperature 200° Fahrenheit. See your Kerotest wholesaler today.

KEROTEST

2525 LIBERTY AVENUE • PITTSBURGH 22, PA.

HIGH VELOCITY . . .

Continued from page 74

The flexible connection should be from 12 to 24" long. It is usually shipped in coil lengths and cut to the correct length on the building site. Pipe straps or clamps or adhesive tape bindings are generally used to secure the hose to the ducting and the units.

Provision for expansion and contraction of the supply ducting due to changes in the primary air temperature is necessary. The duct risers should, therefore, be anchored at the center only and allowed to expand or contract up or down. Any additional supports should allow for free vertical movement of the risers. The risers may also be anchored at the bottom only and allowed to expand in the contraction of the run.

Expansion Range Cited

The linear expansion of headers, risers and run-outs is about .4" per hundred feet for the normal range of the primary temperature, that is, between 50 and 100°.

Even though a system delivers the required quantity of air to a room, unsatisfactory conditions result if the air is poorly distributed. The crux of a high velocity air conditioning system, therefore, is the ability to introduce air into an enclosure and to distribute it, transmitted through small ducts, at high velocities without creating harmful drafts and objectionable noise. The system operates successfully if the occupants of the conditioned room are comfortable without being aware of the air conditioning installation.

Place Diffusers Anywhere

Among the successful units which produce this type of comfort is a high velocity system which reduces pressure and velocity and attenuates the sound level of the air before it is discharged through an air diffuser. Air diffusers used in this type of operation may be placed at any point in the conditioned area, with virtually no limitations on their location.

Units are available for installation in the ceiling, in the walls and under the windows, with front or

sill discharge. Diffusers are frequently used as an integral part of the interior design of the room, in conjunction with chandeliers or other lighting fixtures.

Primary air reaches the unit at velocities up to 4000 fpm with static pressures up to 3". These velocities and pressures must be greatly reduced before the air reaches the diffuser, and the velocities must be further reduced by the diffuser itself.

The unit consists of a sound attenuating box equipped with a combination static pressure and velocity reducing valve which re-



duces the velocity to an acceptable limit before it reaches the diffuser, and also permits ready balancing of the design air quantity regardless of the duct static.

Elbows, flexible connections, and other elements of a high velocity system product turbulent air flow and the air, when entering a high velocity unit, creates objectionable noise as a result of this turbulence. This high frequency noise is attenuated in the sound attenuating box of the unit which, therefore, has a low sound level.

High velocity systems use a minimum of primary air and, therefore, operate with high temperature differentials. For this reason, the unit uses a diffuser with high internal induction. This causes a large amount of room air to be mixed with the primary air within the diffuser and permits introduction into the room of air of low temperature and medium velocity without causing drafts.

The mixture of primary air and

induced air is discharged in a series of expanding turbulent layers and, therefore, readily entrains a large volume of additional room air, equalizing temperature and humidity throughout the entire zone of occupancy.

To avoid any shortcomings in high air distribution systems, careful selection of the system to be used, careful overall design, and careful supervision of the workmanship are necessary.

High velocity offers tremendous potential in the development of new markets for air conditioning systems. While there is no doubt that this potential is being tapped at present, it will be exploited even further in the future.

ADDITION PLANNED FOR VICTORY METAL PLANT

Victory Metal Mfg. Corp., Plymouth Meeting, Pa., manufacturers of commercial refrigerators, plans to start construction this year on an 80,000 sq.ft. addition to adjoin its new two-year-old plant, making a total of 180,000 sq.ft., according to A. Raymond, president.

Sales increase in commercial refrigerators, plus the need for additional space for the manufacture of a new line of products in an allied field, including rotisseries, water coolers, and milk dispensers, were given as principal reasons for the expansion.

According to Raymond, the company also is contemplating the purchase of a Philadelphia company presently making commercial refrigerators.

SPEEDY INSTALLATION CLAIMED AS FEATURE

What is said to be the first self-contained combination heating and air conditioning unit specifically designed to permit speedy modernization of hotel and motel rooms without interruption to normal service has been developed by Amic Mfg. Corp., Long Island City, N. Y.

Only construction work necessary to install the unit, the company says, is to create a small opening in the outer wall of each room to permit placement of a steel sleeve to house the unit.



*** THIS new *Fluidyne*® REDI-PAK BULLETIN
GIVES THE PROFIT MAKING STORY OF PEERLESS'
END-SUCTION PUMP MERCHANDISING PLAN**

PEERLESS PUMP has pre-packaged the 22 most frequently ordered sizes of integral hp end-suction pumps. You profit from simplified stocking, easy stacking, quick availability and fast selling.

READ ABOUT this profitable pump selling idea in our new Redi-Pak Fluidyne pump bulletin. Pages from it are shown above. All you do is buy and apply right from the complete selection chart shown in the bulletin. The 22 easy-to-order pump sizes, from 1 x 2 x 6 (1hp) through 2½ x 3 x 10 (15hp), fit 4 out of 5 of all end-suction integral hp pump applications.

You make no pump changes. Cartons are easy-to-handle and stack. Your customers get clean factory-fresh merchandise. You satisfy their requirements quickly, efficiently and profitably.

Mail the coupon now for your copy of this bulletin. It will give you a proved and practical idea of how you can profit from the increasingly popular end-suction pump market.



1 x 2 x 6 (1hp) to 2½ x 3 x 10 (15 hp)

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Factories: Los Angeles 31, California and Indianapolis 8, Indiana

Offices: New York; Atlanta; Chicago; St. Louis; Phoenix; San Francisco; Fresno; Los Angeles; Plainview and Lubbock, Texas; Albuquerque.

Distributors in Principal Cities.
Consult your Telephone Directory.

*** ☐ Please send me Peerless Redi-Pak Pump Bulletin No. B-2319**

NAME _____ COMPANY _____

ADDRESS _____ CITY _____ STATE _____

Circle No. 70 on Reader Service Card

COMPRESSOR SHIPMENTS TOTAL 2,347,339

Manufacturer's shipments of compressor bodies used in air-conditioning and refrigeration units were up more than 33% during the first five months of 1956, as compared with the same period of 1955, reports Geo. S. Jones, Jr., managing director of the Air-Conditioning and Refrigeration Institute. The figures, which do not include compressors used in household refrigerators, were compiled from reports made to ARI by manufacturers whose output is estimated to represent in excess of 90% of the industry.

Actual shipments for the five-month period totaled 2,347,339 units, compared with 1,758,857 units in the same period last year. May shipments this year were 472,935 units, against 393,181 in May, 1955. The totals do not include compressors designed for use with ammonia refrigerants.

Of the five-month total for 1956, 140,525 of the compressor bodies shipped were of the type used in automotive air-conditioning. A comparative figure for five months of 1955 is not available, but total 1955 shipments amounted to 255,371 units.

Figures for compressor bodies, broken down by categories, together with the names of reporting companies, are shown in the accompanying table.

WOLVERINE TUBE OPENS MIAMI MILL DEPOT

Wolverine Tube, Div. of Calumet & Hecla, Inc., has opened a new mill depot in Miami, Fla. Tillman Stone will coordinate the operation from Jacksonville Beach.

It also was announced that Wolverine's Dallas mill depot and sales office have been moved to newer and more spacious quarters there. John Howland will direct activities from the Dallas sales office.

REMCO SPEEDS BRAZING OF CAR COOLING PARTS

Remco, Inc. of Zelenpole, Pa. has set up high speed manufacturing lines for the production of receiver-filter-drier-liquid-indica-

Manufacturers' Shipments Of Compressor Bodies (Except for household refrigerators)

FOR ALL REFRIGERANTS EXCEPT AMMONIA (excluding units for automotive air-conditioning)	SHIPMENTS INCLUDING EXPORTS (number)	
	MAY, 1956	* JAN. - MAY, 1956
HORSEPOWER		
1/5 HP & UNDER	55,441	247,154
1/4 HP	73,636	391,319
1/3 HP	34,327	157,486
1/2 HP	49,146	219,687
3/4 HP	71,371	444,862
1 HP	94,170	396,069
1 1/2 HP	28,372	166,452
2 HP	8,515	38,952
3 HP	12,132	63,472
5 HP	11,726	48,367
7 1/2 HP	5,437	21,545
10 HP	1,211	4,527
15 HP	378	1,797
20 HP	320	1,264
25 HP	214	777
30 HP & OVER	634	3,084
TOTAL	447,030	2,206,814
FOR AMMONIA REFRIGERANT - TOTAL	153	894
FOR AUTOMOTIVE AIR- CONDITIONING - TOTAL	25,905	140,525
GRAND TOTAL	473,088	2,348,233

*Includes revised data reported to ARI.

This summary includes all compressor bodies shipped by the reporting companies regardless of whether they were shipped separately or incorporated into a condensing unit or unitary end-use product (such as a room air-conditioner, display case, freezer, or commercial refrigerator). Shipments for export are included. Shipments for household refrigerators are not included.

In order to avoid duplication of reporting, shipment figures were requested only from companies that assembled the machined compressor casting with the components necessary to make a complete compressor or motor-compressor assembly.

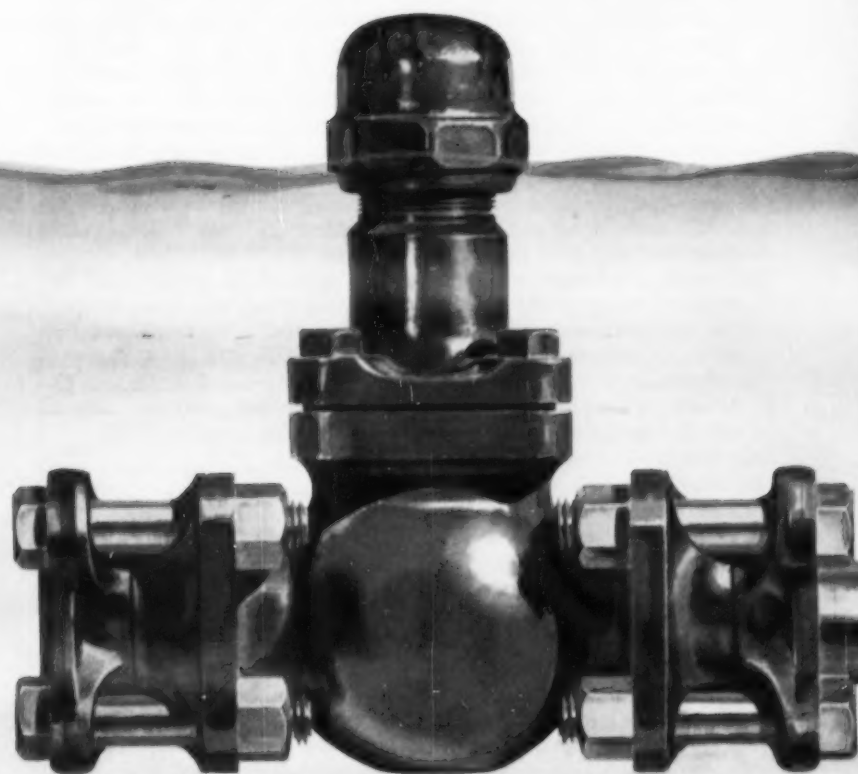
Reporting Companies: Airtemp, Brunner, Carrier, Copeland, Curtis, Frick, Frigidaire, General Electric, Kelvinator, Lehigh, Servel, Tecumseh, Trane, Vilter, Westinghouse, Worthington, York.

tors to be used with air-cooled condensers manufactured by McCord Corp. of Detroit for 1957 Ford automobile air conditioning systems.

These Remco units combine the company's Super-Flo filter-driers with its E-Z-See liquid indicators. This calls for assembly in a steel receiver shell, and the induction brazing to seal the combination.

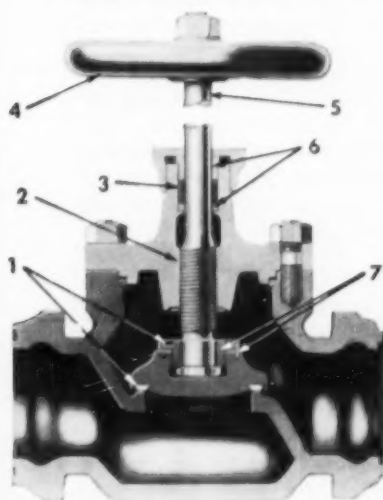
This is accomplished by silver brazing caps and fittings to the bodies as they pass down a conveyor system.

A Lindberg high frequency, tube-type, induction brazer silver brazes the joints at the rate of one every six seconds. The 30-kilowatt induction machine operates at 440 volts and brazes at a temperature of 1260 F.



Every York valve must pass this test

Thorough testing of York "Freon" and Ammonia valves guards against valve leakage, lessens risk of system shut-downs



1. Soft Metal Seating Surfaces for Positive Seal.
2. Extra Large Screw Area — Reduces Wear.
3. Generous Packing. 4. Unusually Sturdy Hand Wheel. 5. Polished Valve Stem. 6. Packing Gland and Washers Prevent Binding. 7. Lock Nut and Locking Pin Secures Button to Stem.

Valves are the control centers upon which your entire refrigeration system depends. Frequently valves represent 50% of the total cost of the piping layout. If a valve leaks it can entail shutting down the whole system for repairs.

York valves offer the best possible insurance against such costly shutdowns, because each valve is tested twice underwater, at air pressures of 300 pounds per square inch — first for leakage across the seat and then for over-all tightness. The smallest bubble in either test will cause rejection of the valve.

York valves owe their dependability and ruggedness to exceptionally tough metals and to superior design features, many of which are pointed out at the left. These features help account for the fact that there are more York "Freon" and Ammonia valves and fittings in use today than any other make. For more information about York's complete line — comprising more than 6000 types and sizes of valves and fittings — see your York Wholesaler of Accessories and Supplies or write: York Corporation, Subsidiary of Borg-Warner Corporation, York, Pennsylvania.



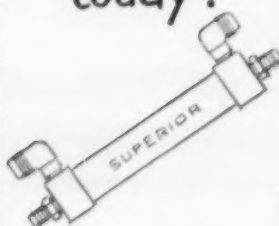
the quality name in refrigeration

HEADQUARTERS FOR
MECHANICAL COOLING SINCE 1888

YORK
CORPORATION



making an
installation
today?



gear it for
maximum
performance
with a
Heat
Exchanger
by



Superior
valve & fittings co.
pittsburgh 26, pa.

Circle No. 72 on Reader Service Card

ARI ISSUES MULTI-ZONE ENGINEERING STANDARD

A new application engineering standard for air conditioning multi-zone buildings, such as factories, office buildings, and similar structures in which varying degrees of cooling and humidity must be maintained, has been issued by the Air-Conditioning and Refrigeration Institute. It is limited to the setting of minimum conditions and factors that form the basis of design load estimating and specifications of performance for such installations.

In effect a complete revision of a standard issued in 1947 by the Air Conditioning and Refrigerating Machinery Association, a predecessor organization of ARI, the new document is aimed at systematizing application engineering of air conditioning installations.

Among the factors and phases of estimating loads and setting performance specifications covered in the new ARI Standard 530 are:

(1) Design load factors for inside and outside conditions; (2)

Sensible heat gain through glass; (3) Transmission; (4) Heat gain from occupants; (5) Heat gain from appliances; (6) Ventilation and infiltration; (7) Air motion in conditioned spaces; (8) Capacity specifications; (9) Cooling load calculations; (10) Multi-zone building refrigeration loads; (11) Heating load calculations; (12) Safety provisions.

Copies of the new standard, including a new and more comprehensive cooling load estimate form, may be obtained from the Air-Conditioning and Refrigeration Institute, 1346 Connecticut Avenue, N. W., Washington 6, D. C.

TWO MEMBERS ADDED TO HEATING-COOLING BOARD

Two members have been added to the board of Better Heating-Cooling Council bringing the total number to eleven.

Douglas W. Bell, Bell Plumbing & Heating Co., Denver, was appointed to the industry-wide promotional group's board as the representative of the Mechanical Contractors Association of America.

W. A. Burbine, director of heating sales, Crane Co., was named to fill the unexpired term of the late George L. Erwin.

Council membership now includes 44 industry manufacturers and associations of hot water and steam heating and cooling equipment. A permanent six-man staff is headed by executive director Franklin Greene.

The Council acts as a public and trade information center for fluid heating and cooling systems and promotes wider use of such comfort installations in homes and other buildings.

DRAYER-HANSON NAMES NEW MIDWEST REP

Drayer-Hanson, Inc., has named Bradbury-Kenrick Associates, Detroit, as a key factory representative in the midwest area.

The firm, headed by C. Fay Kenrick, will handle direct contact and sales for the Drayer-Hanson Industrial Div., and will cover Michigan and six counties in northwestern Ohio, surrounding Toledo.

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20% to 40%
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leak protection

No compound compares with Rectorseal No. 2 for sealing quality and price. Insoluble in all refrigerant gases, it provides positive sealing on all thread connections of refrigeration installations. It actually costs 20% to 40% less than other sealants. No other compound is so economical to use.

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RECTORSEAL
NUMBER TWO

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Du PONT LETS INDUSTRY USE REFRIGERANT CODE

Du Pont Co. has offered to make generally available to the cooling industry a simplified numbering system to identify chemical compounds used as refrigerants.

Specifically, Du Pont has announced that it will not look upon use by the refrigerants industry of—the generic term “refrigerant”, followed by code numbers based on Du Pont’s numbering

PUBLICATION of a revised application engineering standard (610-56) has been announced by the Air-Conditioning and Refrigeration Institute. It specifies minimum application engineering standards for year-round residential air conditioning systems with refrigeration and warm air heating, and includes a one-page form for estimating cooling load on residential installation.

Also included is a roof-overhang factor for use in calculating shaded and unshaded areas of windows as a step in arriving at the estimated cooling load, and a revision of the table covering “design outside conditions” in all parts of the United States.

Extra copies of the cooling load estimate form are available in pads of 50 forms, for use by contractors and others estimating cooling loads in specific residences. Forms may be purchased from ARI at \$1 per pad of 50. The revised Standard 610 is available from the Institute at 50 cents per copy.

system, as infringement of its trademarks. Such trademarks consist of a combination of “Freon” or the letter “F” with such numbers, as in the case of “Freon-11”, “F-11”, “Freon-22”, “F-22”, etc. However, it is made clear that Du Pont reserves to itself the exclusive use of its trademarks.

The company feels that acceptance of the proposal would eliminate confusion existing in the refrigeration industry due to similarity of fluorinated halo-hydrocarbon refrigerants. The company also feels that a common numbering system not only would simplify the work of equipment designers and manufacturers but would assist refrigeration servicemen in identifying and using the proper cooling agent in repair work, regardless of the source of the material.

265-HOME PROJECT TO USE BUILT-IN UNITS

Lewyt Air Conditioner Corp., has received an order for 1060 of its built-in wall air conditioners from the Hallmark Construction Corp., builders of 265 homes on a 135-acre tract in East Brunswick, N. J. The order involves about \$250,000.

Individual units will be strategically located around the perimeter of each dwelling so that cooling temperatures will be equalized throughout. The units will have cooling capacities up to one ton, and the number of units used will depend on house size and its exposure to the sun. The homes are in the \$16,000 to \$17,500 price range.

NATIONAL-U.S. MOVES PITTSBURGH BRANCH

The Pittsburgh branch sales office of the heating and air conditioning division of National-U.S. Radiator Corp. has moved from 125 First Ave. to 2666 W. Liberty Ave. C. T. Hale is branch manager.

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The Commercial Refrigeration & Air Conditioning

APPLICATIONS MANUAL

"Duplex" System Provides Maximum Flexibility For Rental-Type Cold Storage Warehouse Space

by Hugo C. Smith

WHEN cold storage space is to be leased to a number of tenants, the application engineer's problems are numerous enough to require considerable study.

Each tenant usually has his own idea of what kind of refrigeration is best, so one of the most difficult problems on this type of job is to get the individual tenants to decide what temperature and humidity conditions are best for all. Consequently, the application engineer's best bet is to provide an installation with sufficient flexibility to operate at a number of different temperature and humidity conditions.

The New Central Market Association of Cleveland, Ohio, recently handled this problem in an extremely simple and effective manner. They sized to suit their tenant's needs were house, with floor area of approximately 120 x 150'. Individual lockers sized to suit their tenants needs were constructed of welded and galvanized wire fencing with a 1 x 2" mesh. Framing is 4 x 4's on 3' centers, with 2 x 8 meat rails bolted to the 4 x 4 studs. Truck bump rails, also constructed of 2 x 8's, are provided in the aisles at all contact points.

This construction provides for unobstructed air circulation throughout the cold storage area. The cement plaster walls and ceiling of the cooler were treated with a white cement waterproofing. Vapor-proof lights and switches were provided for each locker.

In planning the refrigeration for this type of an installation, the application engineer first should devise some provision for continuous service in case of breakdowns—excepting, of course, those resulting from acts of God or other factors beyond his control.

Secondly, extreme care should be used to provide a job with the best possible humidity conditions for the product to be stored. It is important that these humidity conditions be maintained for peak loading of the cooler as well as average loading, which is usually 50% of peak summer loads.

In the third place, uniform air distribution throughout the product area and working area is important if the cooler is used for cutting or processing, and should receive special attention from the application engineer.

To meet these exacting requirements we provided two 7½-hp semi-hermetic condensing units, each connected to two ceiling mounted unit coolers with 2080 cfm each. Each separate compressor-coil system works completely independent of the other.

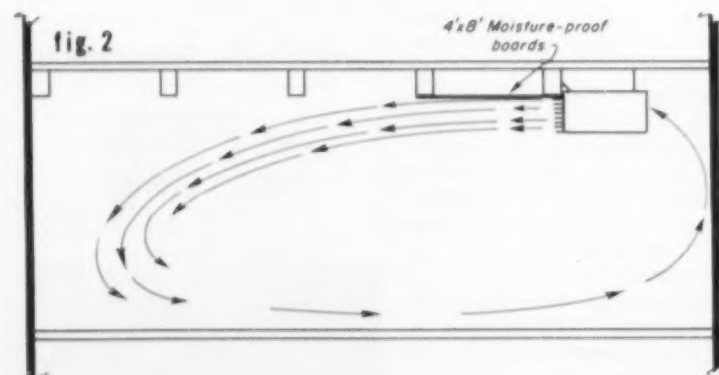
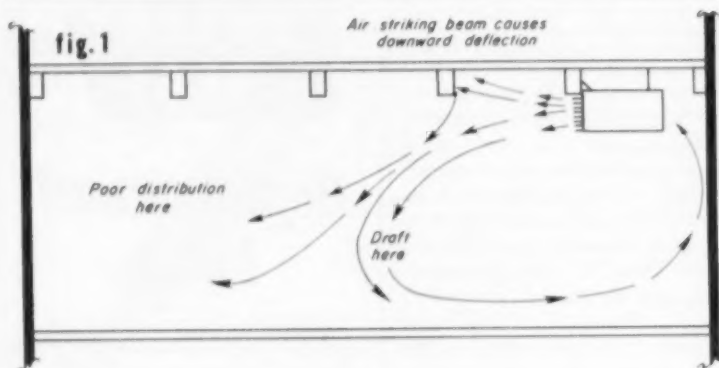
Under normal conditions on identical cut-in and cut-out settings these compressors will alternate, one running one cycle and the other running the next cycle. Only when maximum

loads are impressed on the coolers do both compressors run. In this way design humidity conditions may be maintained because condensing unit capacity is more closely matched to room loadings than when a single condensing unit of double size is selected.

It must be remembered that a single large compressor selected for maximum product loads and maximum ambient temperatures will maintain high humidity and high evaporative temperatures only at maximum conditions. At 50% of maximum loading, back pressures will drop and excessive product dehydration will take place.

In this particular job, coils had to be mounted 18" below the ceiling because of supporting beams which ran in both directions. Such a condition is encountered many times in cold storage work and causes an air deflection directly downward from the beam ahead of the coil, as indicated in Fig. 1. This results in curtailed air throw and also complaints about drafts from men working in the cooler.

Panels of marine plywood or properly supported ¼" cement-asbestos board may be fastened to the underside of the two beams immediately in front of the blower coil, as shown in Fig. 2, in order to smooth out the air flow and thus correct the problem of improper air distribution throughout the storage area.





For the first time... An accurate field method for adding critical charges of refrigerants

"Virginia's" new Can-O-Gas Multi-Opener provides, for the first time, an accurate method of adding critical charges of refrigerants in the field. With the Multi-Opener No. 2, by means of the proper combination of precision filled weights of "Freon-12," 15 different fractional charges—from 16 oz. to 30 oz. in $\frac{1}{2}$ oz. increments—can be delivered with an accuracy of plus-or-minus 4 grams.

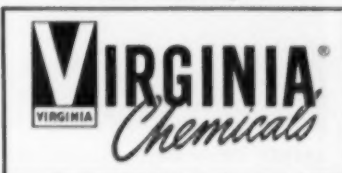
By use of the 3-can Multi-Opener No. 3, 31 different fractional charges are possible, from 24 oz. to 45 oz.,

also in $\frac{1}{2}$ oz. increments. These novel, new Multi-Opener units are easy to operate, and are virtually indestructible. And the throw-away feature of Can-O-Gas containers completes the picture of the convenience of Can-O-Gas Multi-Opener charging. Can-O-Gas Multi-Openers deliver the refrigerant in the gas phase or—when inverted—in the liquid phase.

Order a supply of Can-O-Gas Multi-Openers No. 2 and No. 3 today for accurate field charging.

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Refrigeration Division
VIRGINIA SMELTING COMPANY
237 Jefferson St.
West Norfolk, Virginia



ESOTO • KINETIC CHEMICAL'S "FREON" REFRIGERANTS • V METH-L
CAN-O-GAS • PERMAGUM • WATER TREATMENT CHEMICALS
PRESSITITE TAPE • KNIKWRAP • SURISO REFRIGERATION OILS
Available in Canada and many other countries

WAGNER TOOL FORMS NEW SALES COMPANY

A new sales company, Watsco, Inc., has been formed to handle and distribute the products of Wagner Tool & Supply Corp.

According to William Wagner, president of Wagner Tool, increased sales and wider distribution necessitated the formation of the new company. Officers and staff of the new company are:

William Wagner, president; George Iskyan, vice president; Stuart Wagner, secretary-treasurer; Jack Chorost, credit manager; L. K. Steiner, advertising. Offices of the new company are at the Wagner Tool plant at 1020 E. 15th St., Hialeah, Fla.

Formation of the new company is the second major move made by Wagner Tool & Supply in recent months. The entire operation was moved to Hialeah last April from Long Island City, N. Y., its original location.

Air conditioned, the new plant has over 6,000 sq. ft. devoted to manufacturing. Public rooms, executive offices, clerical space and employees' lounge occupy an additional 4,000 sq. ft. More than half the present workers made the move with the company from Long Island City.

Wagner invites friends and customers, when next in the Miami area, to enjoy a day of boating and fishing as his guest.



NEW HOME of Wagner Tool & Supply Corp., in Hialeah, Fla. The model plant, built in advance of the company's move to Florida from Long Island City, N. Y., last April, has 10,000 sq. ft. of area, of which 6,000 sq. ft. is manufacturing space. Offices of Watsco, Inc., the company's newly formed sales agency, also are located here.

CENSUS REPORTS ON COOLING DISTRIBUTORS

Sales of air conditioning, commercial refrigeration equipment distributors totaled \$484 million during 1954, up 62.5% over 1948, the only previous Business Census year in which this trade was classified separately, according to preliminary results of the 1954 Census of Business conducted by the Bureau of the Census.

At the end of 1954 there were 1,860 places of business in the United States primarily engaged in buying and selling air conditioning and commercial refrigeration equipment, the report states. This compares with 1,434 such establishments in 1948.

States recording the largest dol-

lar volume of sales in 1954 were Texas, New York, California, Pennsylvania, Ohio and Illinois, in the order named, each with annual sales of \$23 million or more. Together, these six states reported sales totaling \$234 million, or 48.4% of the U. S. total.

Number of employees as of mid-November 1954 totaled 13,155. Annual payroll amounted to \$63 million or 13.1% of sales. In addition to paid employees, 1,104 proprietor-owners of unincorporated businesses were actively engaged in the trade, a total of 14,259 personnel. Of this number 2,956 were engaged in selling.

The report covers firms with one or more employees having home and commercial air conditioning and commercial refrigeration as their principal business. Concerns selling this type of equipment as a secondary line, and manufacturers' sales branches and sales offices are not included.

WORTHINGTON TO COOL \$15 MILLION BUILDING

Two 730-ton Worthington centrifugal compressors have been ordered for air conditioning the completely modern, nine-storied \$15 million Chicago Sun-Times Building under construction, scheduled for completion in the spring of 1957.

The compressors will be housed in a sheet-aluminum penthouse. This unique installation is expected to be of considerable interest as a mechanical contracting achievement.



LATEST EXPANSION of production facilities in the plant of Beveco Co., St. Louis manufacturer of beverage cooling equipment, provides more space for specialized fabrication processes such as this, where a workman is sweating the copper refrigerant coil to the liner of a beverage cooler. This most recent increase in production capacity is the sixth such expansion at Beveco within the past 10 years.

Calendar of Industry Conventions

Oct. 22-23	Air Conditioning and Refrigeration Institute (Directors Meeting)	Point Clear, Ala. Grand Hotel
Oct. 24-26	Air Conditioning and Refrigeration Institute (Product Sections)	New Orleans, La.
Oct. 24-27	Air Conditioning and Refrigeration Wholesalers (Annual Meeting)	New Orleans, La. Jung Hotel
Oct. 29-Nov. 2	National Association Practical Refrigerating Engineers, Inc. (Annual Convention)	Detroit, Mich. Statler Hotel
Nov. 13-15	Institute Of Boiler and Radiator Manufacturers (Fall Meeting)	
Nov. 13-16	National Association of Ice Industries (Annual Convention)	Atlanta, Ga. Biltmore Hotel
Nov. 15-18	Refrigeration Service Engineers Society (Annual Meeting)	Kansas City, Mo.
Nov. 25-28	American Society of Refrigerating Engineers (Semi-Annual Meeting)	Boston, Mass. Hotel Statler
Nov. 27-30	National Warm Air Heating and Air Conditioning Association (Committee Meetings and Annual Convention)	Cincinnati, Ohio Netherland Plaza Hotel
Dec. 3-4	National Commercial Refrigerator Sales Assn. (Annual Meeting)	San Francisco, Calif. Mark Hopkins Hotel
Feb. 25-March 1, 1957	International Heating and Air Conditioning Exposition	Chicago, Ill. Int'l. Amphitheatre
Nov. 18-21, 1957	10th Exposition of Air Conditioning & Ref'n. Industry	Chicago, Ill. Int'l. Amphitheatre

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Compressor Replacement Parts for all makes PROSTACO

For precision fit, long life and dependable service, it'll pay to rely on the know-how and manufacturing ability of Production Stamping.

Above are just a few of several hundred compressor replacement parts for all makes and models. Each is an exact duplicate of the manufacturer's original.

Write today for latest free catalog

Production Stamping Co.

2316 South 24th St. Omaha, Nebraska

IDEAL COOLER KEEPS TRADEMARK RIGHTS

Ideal Dispenser Co., Bloomington, Ill., has failed in its attempt to have "Ideal" registered as a trademark. The Examiner of Interferences in the United States Patent Office sustained the action brought by Ideal Cooler Corp., St. Louis, and held that Ideal Dispenser was not entitled to a trademark registration.

Ideal Cooler claimed a superior right in "Ideal" as a trademark for refrigerated cabinets on the grounds of prior usage, making the point that it alone was entitled to the presumption of ownership which a U. S. trademark registration affords.

The Examiner of Interferences held the facts established that Ideal of St. Louis' use began in 1936, at least four years before use by Ideal of Bloomington.

STYROFOAM DISTRIBUTOR

Pacific Foam Products Co., Los Angeles, Calif., has been named distributor for "Styrofoam" in southern California and Arizona, by Dow Chemical Co.

Easy to Service! Easiest to Sell!

Lipman

ICE BOY



A sign of good ice

The Profit-Making Line!

Five air-cooled and water-cooled models right for price — poundage — hard ice.

Only One Simple Control!

Fewer parts to break down — only one simple control for both ice-making and defrosting.

No Pump to Lime Up!

Ice Boys operate with fewer moving parts and controls.

Clear Hard Ice!

Water is mechanically agitated. Ice Boys produce clear ice under adverse water conditions.

Send coupon for further information.



Model LC-25 (above)
1000 ice tips per day

Also available:

Model LC-40
1700 ice tips per day

Model LC-60A
4000 ice tips per day

Model LC-60W
4000 ice tips per day

Model LC-80
4000 ice tips per day



New! Model LC-80
Ice Chiller

LIPMAN DIVISION
Since 1917



TEAR OUT COUPON AND MAIL TODAY

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Send me the facts on why I can make more money

selling and installing: ☐ Ice Boy Ice Makers

☐ New Ice Boy Chiller ☐ Ice Boy Crusher

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RANCO Solenoid Valves

... You're assured of exacting performance when you adopt the Ranco V16 Solenoid Operated Valve to your domestic refrigerator models.

... easily modified to your refrigerator, apply to a secondary or hot gas system for Quick defrosting, either by manual or automatic controls.

The V16, brazed directly into the refrigerating system, operates either a secondary or hot gas defrost system which by-passes hot refrigerant directly from the compressor to the evaporator.

Note these unique features that contribute to the V16's dependable service and easy application to specialized refrigerator designs:

- Adaptable with $\frac{1}{4}$ " or $\frac{3}{8}$ " outside diameter, two or three connecting tubes.
- Available in several models for pressures of 20 psi up to 400 psi, and port sizes of $\frac{1}{8}$ ", $\frac{1}{16}$ " and $\frac{1}{32}$ ".
- Can be applied to unload high pressure in refrigerating system.
- Special nylon needle valve offers exceptionally long wear.
- Solenoid coil is waterproof, "potted" type molded resin.
- Available with metal cover for outside installation; cover adaptable to BX fitting.



THE V16 VALVE is typical—in quality and performance—of more than a million Ranco Controls that go into service each month. Why not let us demonstrate its direct application to your problem?



Ranco Inc.

COLUMBUS 1, OHIO

Here's How

PROFITABLE SERVICE AND INSTALLATION PRACTICES

When Charging Lowside Charge Through a Drier

The safest way to charge a system through the lowside is to pull the vapor through a drier placed as close as possible to the lowside charging port of the machine.

Refrigerants such as Freon-12, Freon-113, and Freon-114 are known as auto-drivers. In a closed container, moisture tends to leave the liquid and concentrate in the vapor.

In Freon-12, the ratio may go as high as 7 to 1, at room temperature. Thus, if the refrigerant

I DO IT THIS WAY

I have learned from long experience that when cutting stainless steel with an ordinary hacksaw, it is extremely important to use long, slow strokes.

Recently I saw a man trying to cut a 1" stainless steel pump shaft in two by using rapid, short strokes. He had worn out 12 hacksaw blades and was not yet half-way through. After I showed him the proper technique, he finished cutting the shaft and the blade was still good.

This same method should be applied to all hand hacksaw work, as the blades will last a great deal longer under these conditions, but it is especially important with the harder metals.

M. S. Chapman
Wheeling, W. Va.

contained 10 ppm in the liquid phase, it could have as much as 70 ppm in the vapor.

Even more dramatically, if — as sometimes happens — the service cylinder contains free water, the Freon could become saturated at room temperature (80 F). In this case the liquid could contain 100 ppm and the vapor 700 ppm.

When a unit is charged lowside, this wet vapor is pulled in and the machine could easily be in a freeze-up and acid corrosion condition.



WANT TO EARN \$5?

You don't have to be a literary genius to pick up a fast five-spot. All you have to do is jot down some of the shortcuts you've developed in your maintenance or installation work and send them to Hero's How Editor, Commercial Refrigeration and Air Conditioning. If the Editor votes "yes" on your contribution, your \$5 will be paid promptly when your maintenance tip is published in the magazine. Let's hear from you!

Use the Right Flux— And Use It Right

The proper selection and use of flux is an important consideration in any soldering job. The fluxes best suited to the 50-50 and 95-5 solders for use with copper are in paste form. They consist of a petrolatum impregnated with zinc and ammonium chlorides.

It should not be the function of the flux to clean the copper, but assuming that the copper has been cleaned, the flux may be reasonably expected to remove residues of oxide. In addition, it serves to protect the surfaces from oxidation during the heating process, floats out the remaining oxides ahead of the molten solder, and promotes wetting action of the solder.

Differently from the liquid fluxes, the paste fluxes will stand a moderate amount of overheating without losing their effectiveness.

Liquid fluxes may serve the purpose of removing oxides, but generally serve none of the other purposes of a flux.

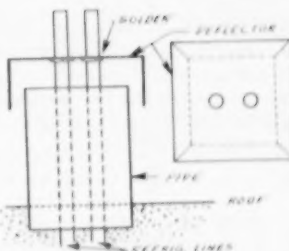
In an effort to produce a flux that will also clean the copper without manual cleaning, ammonia

compounds may be used in dangerous amounts. For these reasons, none of the liquid fluxes now available can be recommended.

There recently have been developed paste-type fluxes for which it is claimed cleaning before use is not required. Some of these fluxes may work reasonably well, except where the tube or fitting is very dirty or greasy. Before using such a flux on a job, the user should satisfy himself that the flux can do what is claimed for it when used on the job under the existing conditions.

It should be pointed out that if a flux permits a joint to be sol-

I DO IT THIS WAY



WHENEVER we mount an air cooled condenser on the roof of a building, we first drill a hole through the roof and then insert a section of pipe in this hole, with the pipe extending about a foot or two above the roof. We then run the refrigeration lines from the equipment to the condenser through this pipe, making sure that the lines do not touch either the pipe or each other.

To weatherproof this arrangement, we take a square piece of stainless steel sheet and cut holes in it through which to pass the refrigerant lines. After putting this deflector into place above the top of the pipe extension, we cut each corner and then bend the sides of the square so that they will drop approximately 8" below the top of the pipe. These corner overlaps are then soldered, and the sheet metal shield is soldered to the refrigeration lines at the point where the tubing passes through the holes.

Al J. Dalpiex
Dennison, Ohio

dered without cleaning — that is, if the solder covers up the scale or surface dirt — a weak joint may result.

For brazing, the type of flux



FREEZ-RITE PRODUCE MERCHANDISER



• AUTOMATIC
• HUMIDIFYING
• ACTION KEEPS
• VEGETABLES
• FRESHER,
• CRISPER LONGER

Freez-rite merchandisers move food faster. Ideal for special promotions at traffic hot-spots. Easy-to-read price panels, full view glass fronts eliminate shopper bottle-necks, encourage impulse buying. Automatic defrosting.

- ✓ LOWER INITIAL COST . . . cost per displayed package, lowest in field
- ✓ LOWER INSTALLATION COST . . . just plug in. Only 110 volt line needed. Small enough to slide through front door.
- ✓ LOWER OPERATING COST . . . Single condensing unit operates for as little as 10¢ per day.
- ✓ LOWER UPKEEP . . . no belts, no plug-ups, sealed units need no maintenance.

FREEZ-RITE displays and SELLs foods as well as units twice as large costing twice as much!

Freez-rite

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LOWER DEALER COSTS IN NEW DISTRIBUTOR PLAN

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FREEZ-RITE

17172 REDFORD AVE., DETROIT, MICH.

Send full details on your new sales plan for distributors.

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112

selected will depend on the filler metal. For best results, the flux recommended by the manufacturer of the filler metal should be used. Filler metals in the copper-phosphorous group are generally self-fluxing and no other flux is needed when joining copper to copper. However, here too, manual cleaning before brazing is required.

RANCO ESTABLISHES NEW RESEARCH LAB

Establishment of an additional Ranco research and development laboratory in Fort Lauderdale, Fla., was announced recently by A. M. Hoover, president of Ranco, Inc.

The new installation, devoted to the development of controls for household appliances and air conditioning, will serve as an advanced research center in addition to present engineering facilities in Columbus serving the firm's fine production plants.

E. D. Raney, secretary of Ranco, will head up the new operation. E. C. Raney, chairman of the board, and a four-year resident of Ft. Lauderdale, will take an active part in the laboratory's developmental activities. The new laboratory will be located at 3080 N. E. 12th Terrace.

Ranco now operates production facilities in Columbus, Delaware and Plain City, Ohio, and Tannochside (near Glasgow) Scotland. In addition, the firm recently arranged for part ownership of Wilcolator, Ltd., in Australia and for manufacture and sale of its products there.

DISTRIBUTORS NAMED

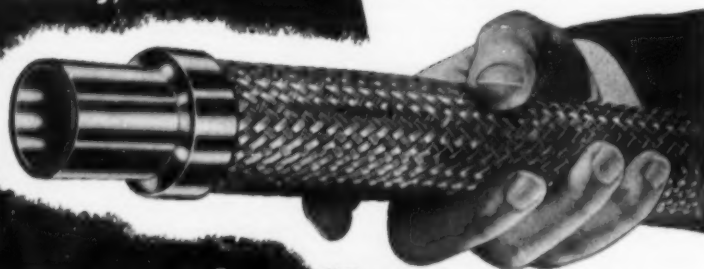
The appointment of two distributors in Illinois by the United States Air Conditioning Corp. is announced by R. P. Kelley, general sales manager. The firms are George V. Andrew, Inc., in Harvard; and Howell Heating Service in Dixon.

only **PACKLESS** gives you

ALL THIS....
and **IMMEDIATE**
delivery, too!

CHECK THESE EXCLUSIVE FEATURES:

- ✓ High-tensile braid provides complete absorption of movement — strong, efficient, no whip transmission.
- ✓ Polished clean, de-burred, ready for installation and smooth, trouble-free operation.
- ✓ Ends sealed after internal cleaning, insuring completely moisture-proof chamber.



**PACKLESS® SEAMLESS
VIBRATION ABSORBERS**

made by the pioneers...
specialists in metal hose

PLUS

**PROMPT DELIVERY TO YOUR
MOST PRECISE NEEDS**

Write today for detailed catalog sheet

PACKLESS METAL HOSE, INC.



Distributors
and Representatives:
Some choice territories open.

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OCTOBER, 1956 • COMMERCIAL REFRIGERATION

HAVERLY ELEC. MERGES WITH JOHN WOOD CO.

Haverly Electric Co., Inc., pioneer Syracuse, N. Y., manufacturer of milk cooling equipment, has merged with John Wood Co., New York manufacturer of a wide range of equipment for farm and home.

C. U. Haverly, president of the 35-year-old firm bearing his name, will continue to direct his firm's



G. Schelling C. U. Haverly

sales organization as in the past. His son, Claire, Jr., also will continue as an integral part of the Haverly management.

With his new affiliation, Haverly reports that he expects an expansion of the firm's entire Syracuse operation within the very near future. George W. Schelling, assistant to the chairman of John Wood, has been named vice president and general manager of the company's new expansion program.

MARKETING TALKS TO SPARK ARW MEETING

Three "M's"—merchandising, marketing, and management—will highlight discussions and speeches at the 21st annual convention of Air Conditioning and Refrigeration Wholesalers, to be held Oct. 24-26 at the Jung Hotel, New Orleans.

Featured speaker at the kickoff luncheon on Thursday, Oct. 25, will be Eugene B. Mapel, of Barrington Associates, New York City management consultants, who will outline "The Marketing Job Today".

At the morning meeting on Friday, Oct. 26, Robert W. French, director of the Port of New Orleans, will present a "Business Review and Preview", and Dr. Paul

C. Taylor of the School of Business, Tulane University, will discuss "Costs and Your Break-Even Point".

Also significant will be a report on methods of promoting ARW wholesalers to the various new channels entering the air conditioning field. This report will be made by J. P. Glass, of Chase Supply Co., Chicago, and Herman Goldberg, of Standard Refrigeration Co., Chicago.

There will also be two sessions of discussions from the floor on subjects of interest to both suppliers and wholesalers. According to Starr Hull, ARW executive secretary, every wholesaler and manufacturer attending the meetings will have an opportunity to speak.

ANOTHER testimonial to the effectiveness of advertising is evident in the experience of Coffey Plumbing & Heating Co., Airtemp air conditioning dealer in Fremont, Nebraska, who credits the use of factory-prepared movie trailers in local theaters with the sale of over 60 tons of cooling equipment.

Convinced that such advertising would pay off even in a relatively small community of 15,000 population, such as Fremont, this aggressive dealer has been alternating the movie trailers every other week between the town's two motion picture houses. Along with the prepared film commercials he has been running an individualized spot announcement calling attention to the benefits of buying Airtemp air conditioning from his firm.

Meetings of ARW directors and finance committee will be held on Oct. 23, and Oct. 24 will be taken up principally by a men's golf tournament at New Orleans Country Club and a boat trip for the ladies aboard the S. S. "Good Neighbor" as guests of the city of New Orleans.

ARW annual meeting, limited to members, will take place on the forenoon of Oct. 25, and will cover the usual committee and officer reports, selection of a program for 1957, constitutional amendment and election of directors.

Following the luncheon Oct. 25 at which Mapel will speak, will be wholesaler-supplier conferences, followed by a reception at 6 p.m.

No formal program has been planned for that evening, but past presidents of ARW will hold their annual dinner at 8 p.m.

E. L. Tramposh, ARW president, also will address the Oct. 26 morning session, as will a representative of the manufacturers' group. More wholesaler-supplier conferences will follow after the noon luncheon, and the 21st annual banquet, at which new officers and directors will be introduced, will be held at 7:30 p.m.

The new ARW board will meet at 10 a.m. the following day.

Notable in connection with the ARW convention is that each member and manufacturer who registers in advance for the complete convention "package" will be insured for \$2,000 accidental death and dismemberment, and \$500 blanket accident-medical reimbursement. Coverage commences at midnight Oct. 23 and expires at midnight Oct. 27.

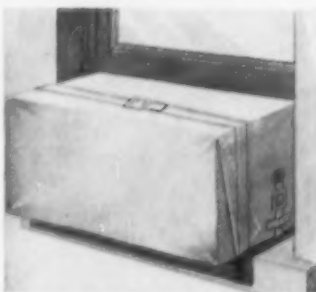
BUY FROM YOUR REFRIGERATION WHOLESALE

TOWER GOES UP FAST



QUICK installation of cooling towers is made by the Hank Thurstin Co., of Denver, through use of a specialized "truck-crane" mounted on the stake body of a two-ton Dodge truck. The company, distributor for Marley towers, has sold and helped install 233 of the units in the first year that water restrictions have been in effect in Denver. The hydraulically operated truck-crane handles loads up to 5000 lbs. in a single lift, and works within a 280-degree arc. Dealers pay a minimum of \$10 for installation service. Thurstin rents the outfit to non-competitors at hourly or daily rates.

Jiffy Fit



The NEW DOUBLE STRAP AIR CONDITIONER PROTECTOR

The only REAL fit for ALL model window air conditioners.

Only SIX sizes and stock numbers.

Attractive forest green fabric.

Clear plastic packaging with visible instruction sheet.

Inexpensive.

A fast and easy seller.

Contact

**TULSA CANVAS
PRODUCTS CO., INC.**
P. O. BOX 2072 Tulsa, Oklahoma

POLL STUDIES OWNERS' HOME COOLING VIEWS

Homeowners' attitudes toward central residential air conditioning are being studied by the Du Pont Co. in the second of its annual series of market research surveys for the air conditioning industry.

Personal interviews with 1900 householders are being made in a nationwide "probability sample" of homeowners in 27 metropolitan areas. The survey is designed to uncover not only factors of satisfaction or dissatisfaction by those whose homes are centrally cooled, but also purchase plans of those whose homes are not now mechanically cooled. Results of the survey are expected to be announced in November.

The survey is being conducted for the Du Pont Co.'s "Kinetic" Chemicals Div. by W. R. Simmons and Associates Research, Inc., New York City, under the supervision of Du Pont's marketing research division.

In an effort to confine the survey of non-owners of cooling equipment to those who represent

the most likely prospects for central air conditioning, the interviews will be limited to owners of homes valued at upwards of \$6500 in the South and at more than \$7500 in all other sections of the nation.

"Kinetic" Chemicals' first air conditioning survey, conducted last fall, was limited to room air conditioners and indicated that only one home in 22 was equipped with mechanical air conditioning at that time.

300% INCREASE CLAIMED IN DRIER CAPACITY

McIntire Co., reports a 300% increase in the drying capacity of its DC filter-driers without increase in size of driers, or increase in price, through the use of a newly developed drying agent, "Permasorb."

Permasorb, a blend of drying agents, is designed to give maximum-balanced drying at high, low, or minute concentrations of moisture over the entire range of liquid line temperatures.

Stable under all refrigeration conditions, it's supposed to have the ability to effectively remove all acids. No chemical reaction can in any way affect the refrigeration system. Special blends of Permasorb are available for applications where particular consideration of service is required.

New units now are available in sizes from 1/6 hp to 100 tons.

UTAH BUILDING GETS DUAL-ZONE SYSTEM

A dual-zone air conditioning system designed for year-round operation is featured in the new \$3 million First Security Building in Salt Lake City, Utah.

The perimeter zone, with under-window units, is controlled individually by thermostats. Units are fed hot or chilled water through steel pipe and high velocity air through ducts from the penthouse. Return and fresh make-up air is washed and regulated to the required temperature. At the window unit, a regulated flow of air is fed through a noise-eliminating device and heated or cooled to required temperature.

AUTO-LITE

for
**EYE
LEVEL
READING**



Auto-Lite Temperature Indicators are ideal for use in processing and storage rooms, and for installation on equipment where temperature indication is desirable.

Model F-1 (illustrated) is available with maximum visibility dial; choice of temperature ranges from minus 60°F to plus 750°F; flexible tubing for remote reading or rigid stem for direct mounting. Adjustable electrical alarm contacts slightly higher. From \$23.50. Send for new catalog describing Auto-Lite Temperature Indicators and Recorders.

THE ELECTRIC AUTO-LITE COMPANY
INSTRUMENT AND GAUGE DIVISION
TOLEDO 1, OHIO
NEW YORK • CHICAGO • SARNIA, ONTARIO

TEMPERATURE INDICATORS AND RECORDERS

CHILLED WATER HELPS PENGUINS BEAT HEAT

Penguins at the National Zoological Park, Washington, D. C., are beating the heat with cool dips in 35°F water, thanks to a chilled water system recently installed there.

A Heat-X 'PC' package chiller in the basement of the Penguin House chills water held in a 400-gallon storage tank and then fed into the penguin pool at 35°F. Chilled water also is used for hosing down the cage floor, a procedure which helps maintain cage temperatures at about 40°F.

W-R RETAINS DESIGNER

White-Rodgers Co., has retained Raymond Loewy Associates for new design projects involving the company's products, packaging, display materials, and trademark styling.

NAMED BY DRAVO

The Home Equipment Distributing Co., 135 38th St., N. E., Cedar Rapids, Iowa, has been appointed distributor of Dravo heating equipment in the Iowa counties of Benton, Linn, Iowa, and Johnson.



WHEN Chancellor Konrad Adenauer of the Federal Republic of Germany was made an honorary member of the Consolidated Tribes of American Indians recently in Milwaukee a plant employee of Mueller Climatrol played an important part in the ceremonies. William Wheelock (extreme right) a tribal chief and Mueller shipping department employee, presented a plaque of membership to Adenauer. His father, Morris Wheelock (shown in headdress behind the Chancellor) conducted the induction ceremonies. Adenauer was given the name "Layadanolu" (Wise Leader of Many).

In San Antonio's new United Services Automobile Association Building . . .

Flexible *Thermaflex*[®] delivers year-round comfort!

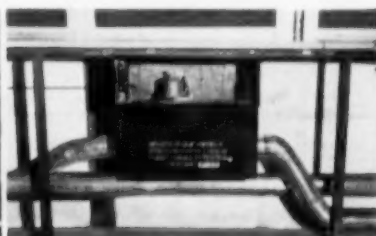
Atlee B. & Robert M. Ayres and Phelps & Dewees & Simmons, Associated Architects; A. J. Monier & Co., Mechanical Contractors; Henry C. Beck Construction Company, General Contractors; United Services Automobile Association, Owners — all of San Antonio, Texas.



Comfort under any weather conditions is a certainty for the occupants of this fine, modern building. The double-duct, high-velocity system supplies both hot and cold air to thermostatically-controlled mixing boxes which deliver air of the pre-determined temperature through high induction diffusers. Thermaflex is used as connectors between main ducts — both hot and cold — and the mixing boxes.



The ready flexibility of Thermaflex ducting saved time and money in this installation. Boxes and diffusers could be located in best operating position — Thermaflex eliminated alignment problems in connections with main ducts. Many of the offices have thermostat-



ically-controlled mixing boxes under windows, used with grille-type outlets. Here's a good example of the ease with which Thermaflex joins main ducts and mixing boxes — eliminating costly and complicated fitting that would be required if rigid ducting were used here.

Laboratory tests have proved that Thermaflex will stand 1200° F. without any sign of combustion or melting — and that it will stand pressure of 25 psi, which is 5 times the minimum standards of the New York Board of Standards and Appeals. Thermaflex bends around corners and obstructions with minimum friction loss — no costly elbows or fittings are needed.

Flexible Tubing

CORPORATION

GUILFORD, CONNECTICUT • LOS ANGELES 64, CALIFORNIA

Send the coupon today! Our engineers will show you how Thermaflex can save you up to 32% on installation costs.

Flexible Tubing Corporation, Dept. 60, Guilford, Connecticut
Please send me more information on Thermaflex.

Name _____

Title and Company _____

Address _____

City _____ Zone _____ State _____

Circle No. 84 on Reader Service Card

CONTRACTORS . . .

Continued from page 50

solved and becoming a part of the local agreement.

A joint program of apprentice and journeymen training was financed and started immediately. The local joint committee composed of four members from ACRA and four members from the U. A. followed the pattern as established by the national program and training committee of the U. A. and RACCA.

The agreement provides for financing of an executive manager who will coordinate the efforts of management and labor in correcting problems attendant to the rapid expansion of the industry which directly effect the future of the industry and its members—including protection to the public from opportunists and incompetent people.

According to Ray Kromer, executive vice president of RACCA national, the Miami joint com-

mittee organization and financing has immediately resulted in an improved understanding of each other's problems.

PATTERN PROVIDED FOR PROFIT-SHARING PLAN

A proven profit-sharing plan submitted to Refrigeration & Air Conditioning Contractors Association by one association member has been approved by a committee of the national RACCA organization and is being submitted as a model to all association members.

This plan, according to RACCA headquarters, provides; (1) benefits to executives and management, as well as to other deserving employees not covered by union welfare plans; (2) personal advantages to management and deserving employees without depreciating operating capital (contributions off the top before taxes); (3) permanency of good employees, plus loyalty and security.

According to RACCA headquarters, the plan has been investigated by attorneys and ap-

proved by the Internal Revenue Department. It has been in actual operation for more than a year.

The RACCA member who developed the plan is reported to have spent in excess of \$5000 with attorneys, actuaries, and trust companies, not counting his own personal time, before putting the plan to work within his own organization.

ACE PUMP APPOINTS 2 REPS IN EAST

Ace Pump Corp has appointed Donovan Associates exclusive representatives for New England and Thomas Scott of White Plains, N. Y., as representatives for metropolitan New York, New Jersey, and eastern Pennsylvania.

Donovan Associates is composed of W. J. Donovan, West Hartford, Conn., who will handle sales in Connecticut, western Massachusetts, and Vermont; and C. A. Garland, Natick, Mass., who will represent the firm in eastern Massachusetts, Maine, and New Hampshire.

Engineers

Are you in on the boom in large size packaged air conditioners—jobs in the 100-ton and over classification? With usAIRco self-contained central station air conditioners (RK) you free yourself of time-consuming bids on small jobs. Capacities from 10 to 60 tons. This is your opportunity to represent a well-advertised line to the architects, engineers, and contractors in your territory. If you are an engineer or have an equivalent background, are well-known in your community, you may be qualified to be a usAIRco manufacturer's representative, in one of several available territories. Write today, giving a brief resume of your background, to Robert P. Kelley, sales manager, United States Air Conditioning Corporation, 7900 Tabor Road, Philadelphia 11, Pennsylvania. An interview will be arranged.



High-pressure Valves & Fittings

Large handwheel

Long oversized stem

Ample packing

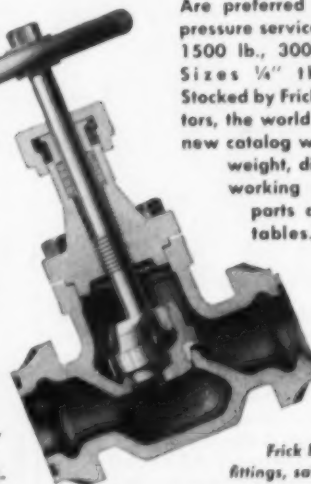
One-piece collar box and bonnet

Back seat permits repacking in use

High-angle seat insures tightness

Standard flanges: screwed sizes to 2"

Full opening: developed for heavy duty



Are preferred for high-pressure services, 300 to 1500 lb., 300 degrees. Sizes 1/4" thru 14". Stocked by Frick Distributors, the world over. Get new catalog with prices, weight, dimensions, working pressures, parts and useful tables.

Frick line includes fittings, safety valves, gauge glasses, return bends, manifolds and welded work.

WAYNESBORO, PENNA., U.S.A.
Frick Co.

Circle No. 85 on Reader Service Card
OCTOBER, 1956 • COMMERCIAL REFRIGERATION

Circle No. 88 on Reader Service Card

Clean Fittings FASTER

... for Better
Sweat Connections!



Schaefer COPPER TUBE FITTING BRUSHES

Here's the quick, easy, "painless" way to clean copper tube fittings for more secure leakproof installations! Just a quick twist of the Schaefer Brush and the fitting is clean — in a fraction of usual time, and without sore fingers. Complete range of sizes for O.D. and nominal fittings, with rustproof stainless steel wire bristles and comfortable hand grips. Write for prices.

**Schaefer BRUSH
MFG. COMPANY**

117 W. WALKER ST., MILWAUKEE 4, WIS.
Write for details on special brush needs.

BUY SCHAEFER . . . IT'S SAFER

Your Customers'
Best Buy. . .

IDEAL
Speed-Freeze
PRODUCTS

BEVERAGE COOLERS
unexcelled storage capacity
(56 cases 12 oz. - 8 ft. cooler!)

INSTANTANEOUS
DIRECT DRAW
DRAFT BEER COOLERS
(with refrigerated faucets)

IDEAL

COOLER CORPORATION

2953 Easton Ave. St. Louis 6, Mo.

Circle No. 87 on Reader Service Card
& AIR CONDITIONING • OCTOBER, 1956

OPPORTUNITIES

(Classified Advertising)

Rates: for "Positions Wanted," \$4.50 minimum, limit 25 words. For all other classifications, \$8.00 minimum for 25 words or under, each additional word 20¢. Boldface type or all capitals, \$10.00 minimum for 25 words or under, each additional word 25¢. All classified advertising payable in advance.

POSITIONS AVAILABLE

CHIEF REFRIGERATION ENGINEER
Unusual opportunity for a well grounded man who wants and can take responsibilities. **SALARY OPEN** — Location New York City — Our organization knows of this ad. Write in confidence to Box 10156 Realservice Advtg. Agency, 110 West 34 St., N. Y. C.

EQUIPMENT FOR SALE

Frick Freon condensing units. Air and water-cooled. 1/3, 1, 1-1/2, and 3-hp units. Some still in factory crates. Need the money, sell cheap. Midwest Refrigeration, Inc., 616 W. 26th St., Kansas City, Mo.

NINE COAST FIRMS NAMED BY SERVEL

Nine firms in southern California have been appointed installing distributors for Servel "All-Year"

gas air conditioning equipment.

The newly appointed installing distributors are:

Russell Heating & Air Conditioning Co., Van Nuys; B. V. Ezell Co., Corona; Marvin D. Shafer Co., Inc., Los Angeles; Don C. Glenn Heating & Air Conditioning Co., Glendale; Gough Bros. Heating Co., Pasadena; Wright's Sheet Metal Mfg. Co., Colton; Allied Air Conditioning Co., Pomona; J. M. Connell Co., Inc., Palm Springs, and Cliff Gentry Sheet Metal & Refrigeration, Indio.

NEW BRYANT WAREHOUSE TO COVER OVER 2 ACRES

Construction has begun on a 100,000 sq. ft. warehouse for Bryant. The structure, which covers about 2 1/4 acres, is expected to cost about \$700,000. It will be located immediately north of the company's manufacturing plant at 1100 W. 21st St. in Indianapolis.

The new warehouse will be erected on 3 1/4 acres of ground purchased from Standard Industries, Inc. of Baltimore. Completion is scheduled for November.

A NEW AND DIFFERENT COOLER UNIT FITS ANY ICE BOX, COOLER, CUSTOM BUILT CABINET

TAYLOR-BURCH *packaged* COOLER UNITS



TAYLOR-BURCH PACKAGED COOLER UNITS are the very latest development in modern cooling practices. No Water used at all. They defrost automatically, are completely air cooled, and the units are hermetically sealed with the gas and oil charge brazed in. No maintenance required, fan motors are self-oiling and the electrical system is completely enclosed. Installation is a low cost, simple operation . . . with no lost floor space.

Model No.	Size	Volts	Normal B.T.U. Reduction (Cooler Size)	Opening Required in Cooler Wall	Approx. Ship. Wt.
17M	1/6 H.P.	115	27 Cubic Ft.	12 1/4" x 12 1/4"	100#
25M	1/4 H.P.	115	40 Cubic Ft.	16 1/4" x 16 1/4"	150#
35M	1/3 H.P.	115	6' x 6' x 7 1/2'	16 1/4" x 16 1/4"	165#
50M	1/2 H.P.	115	6' x 8' x 7 1/2'	16 1/4" x 16 1/4"	180#
75M	3/4 H.P.	220	10' x 8' x 7 1/2'	20 1/4" x 20 1/4"	225#
100M	1 H.P.	220	12' x 12' x 7 1/2'	20 1/4" x 20 1/4"	300#

Write Today
for complete information

The above line of Taylor-Burch packaged cooler units is designed to operate from 33° and above.

TAYLOR-BURCH Refrigeration Products, Inc.

BROOKLYN ROAD

JACKSON, MICHIGAN

Circle No. 86 on Reader Service Card

INDEX TO ADVERTISERS

A

Acme Industries, Inc.	70
Aerevas Corp.	35
Alco Valve Co.	1
Allin Mfg. Co.	94
American Bitumuls & Asphalt Co.	57
American Blower Corp.	75
American Brass Co.	9, 63
Anderson Chemical Co.	62
Anemostat Corp. of America	83, 92
Aurora Pump Co.	97

B

Beach-Russ Co.	26
Bell & Gossett Co.	30
Brunner Mfg. Co.	2

C

Carbonic Dispenser, Inc.	64
Century Electric Co.	91
Chase Brass & Copper Co.	23
Cold Corp. of America	47
Commercial Credit Corp.	8
Capeland Refrigeration Corp.	Cover 2

D

Davison Chemical Co.	21
Dover Mfg. Co.	19
Dow Chemical Co.	16-17
Dwyer-Hanson, Div. of National-U.S. Radiator Corp.	89

E

Electric Auto-Lite Co.	114
------------------------	-----

F

Flexible Tubing Corp.	115
Freez-rite	112
Frick Co.	116

G

Garman Co., Inc.	98
General Chemical Div., Allied Chemical & Dye Corp.	13
General Electric Co.	8

H

Henry Valve Co.	24
S. A. Hirsh Mfg. Co.	49
Howe Ice Machine Co.	52

I

Ideal Cooler Corp.	117
Imperial Brass Mfg. Co.	32

K

Keratest Div., Miller Printing Machinery Co.	99
King Zaera Co.	95
Kinney Mfg. Co.	11
Kramer-Trenton Co.	61

L

Lake Chemical Co.	66
Larkin Coils, Inc.	55
Lehigh Mfg. Co.	87
Lewin-Mathes Co.	14
Lipman Div., Yates American Machine Co.	109

M

Jas. P. Marsh Corp.	22
McCabe-Powers Auto Body Co.	94
McIntire Co.	15
McQuay, Inc.	12
Modine Mfg. Co.	68
J. W. Mortell Co.	88
Mueller Brass Co.	59

N

Nor-Lake Co.	56
--------------	----

P

Packless Metal Hose, Inc.	112
Paragon Electric Co.	29
Peerless Electric Co.	53
Peerless Pump Div., Food Machinery & Chemical Corp.	101
Penn Controls, Inc.	36
Pennsylvania Salt Mfg. Co.	6-7

Pinnacle Equipment Corp.	66
Production Stamping Co.	109

R

Ranco, Inc.	110
Rectorseal	104
Redmond Distributors, Inc.	65
Revere Copper & Brass, Inc.	27
Rotary Seal Co.	105

S

Schaefer Brush Mfg. Co.	117
C. Schmidt Co.	48
Sporlan Valve Co.	10
Square D Co.	25
Stewart Industries, Inc.	28
Superior Valve & Fittings Co.	104, 105

T

Taco Heaters, Inc.	93
Taylor-Burch Refrigeration Products, Inc.	117
Tecumseh Products Co.	58
Texas Co.	51
Tulsa Canvas Products Co., Inc.	114
Typhoon Air Conditioning Co., Inc.	31

U

United States Air Conditioning Corp.	92, 97, 116
United Wire & Supply Co.	60

V

Velocity Power Tool Co.	97
Viking Copper Tube Co.	Cover 3
Virginia Smelting Co.	33, 107

W

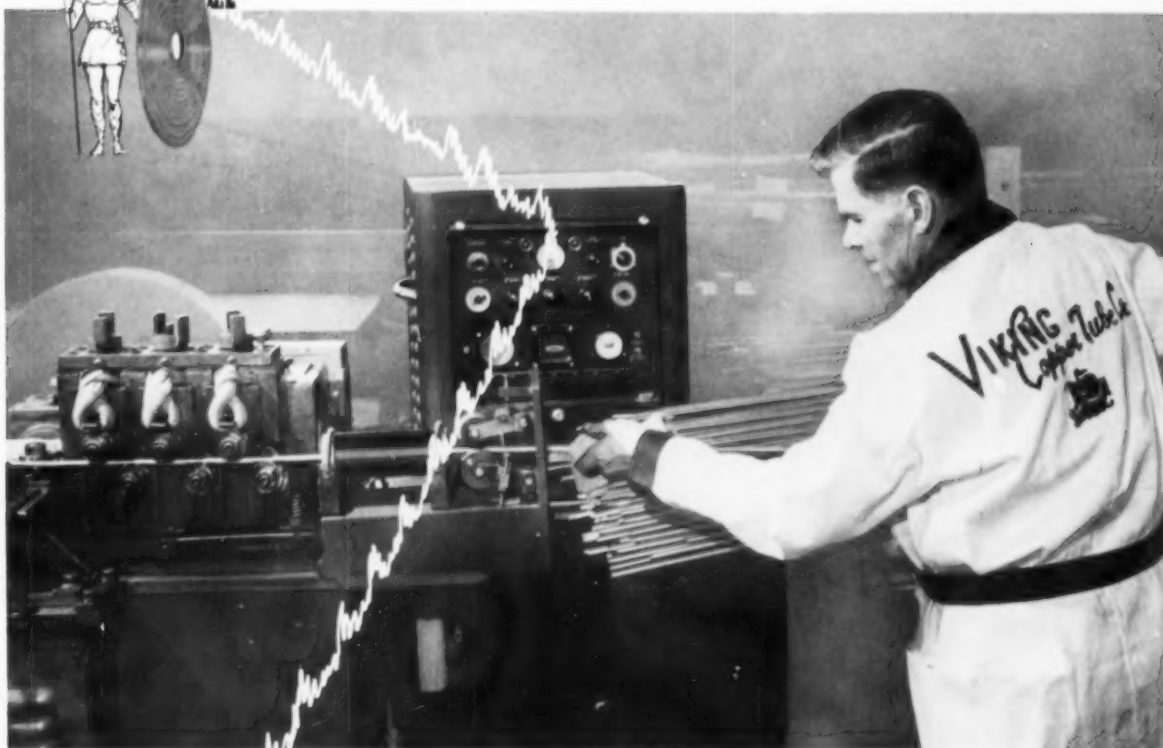
Wagner Electric Co.	4
Watsco, Inc.	34
A. H. Witt Co.	98
Wolverine Tube Div., Calumet & Hecla	18

Y

York Corp.	103
------------	-----

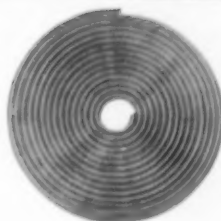


there is a difference in copper tubing . . .



the difference in **VIKING** is

THE **BRAIN** THAT SCREAMS FOR QUALITY



In VIKING's ultra modern plant, an electronic "Brain" literally "screams" when defective tubing passes through its field. The minutest flaw or imperfection in the wall of the tubing causes the "Brain" to flash lights, ring bells and blow horns signalling the operator and automatically discarding the defective tubing.

This unique application of electronic science to the manufacture of VIKING copper tubing virtually assures trouble-free fabrication of the thinnest wall tubing — almost completely eliminating operational failures in tubing.

Because of the quality control practices, such as the electronic "Brain", employed by VIKING more and more manufacturers of air conditioning units and coils have made VIKING their principal source of supply . . . taking advantage of VIKING's "difference" in quality, uniformity and dependability of service.

VIKING copper tubing is the result of the combined efforts of skilled craftsmen seeking always to create a tubing that will do the job better, faster and at lowest cost.



VIKING COPPER TUBE CO.

CLEVELAND 10, OHIO

PRECISION DRAWN SEAMLESS COPPER AND ALUMINUM TUBING

EXTRA STRENGTH

The proper kind of strength and ductility is vital in tubing used for refrigeration and air conditioning purposes. Copper tube possesses these qualities to a far greater degree than other types of tubing. Its uniform temper assures trouble-free fabrication.

EXTRA FLEXIBILITY

Viking Copper Tube is soft and pliable, yet exceedingly rugged. It saves time and labor because it can be coiled, formed, flared and expanded quickly without danger of fracturing or splitting.

CLEAN AND DRY

Viking Copper Tube is triple-sealed at the ends, stays dry and absolutely dirt-free. The seal is made to pass through any opening large enough for the tube itself. It's clean . . . it's bright . . . it's dry!

Circle No. 2 on Reader Service Card

Ouija boards are passé



Time was, when a person had a question, out would come the ouija board for an answer. This wasn't too accurate a system, of course... but a lot of people put a lot of faith in what the ouija board told them.

Times change — and today accuracy is the keyword. That's why the modern business publication wants its circulation audited.

In joining BPA* the publisher is taking an important step toward sound and accurate planning in your behalf. It means that he is checking, double-checking and constantly rechecking —

- Who you are
- Where you work
- What your job is

He wants and needs this information — and the BPA* audit can assure both him and his advertisers that he is getting his magazine into the hands of people *qualified by their common interests* to receive it. It helps him to give you —

- Editorials that will help you in your work
- Advertising that will have value to you

He can serve you even better if you will complete surveys and questionnaires which he may send you, and if you will give him your thoughts and opinions on the editorials and advertisements in his magazine.

You, the reader, are the *key person* to the publisher — and the BPA* audit helps him in his never-ending effort to think about you and design his magazine for you.

You, the reader, benefit when the circulation of a publication is audited by...

*BUSINESS PUBLICATIONS AUDIT OF CIRCULATION, INC.

420 Lexington Avenue

New York 17, N. Y.

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